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Honey Production For the Future

By John W. Holzberlein, Jr.

[This article is part of a talk given at the National Beekeeper's conference in Chicago on January 11-13, 1944.—Editor.]

So much of the future of the honey industry depends on the beekeeper, himself, that I believe it is time for him to look into the possibilities of the future as he has not done in recent years. There are many new avenues now open to us that have largely been obscured in the past. If we move wisely the beekeeping industry may be on the threshold of an era the likes of which we have never seen. I do not like to think that all the golden days for beekeepers are in the past. Not since the last World War have conditions resembled those of the present. Those were truly great days for the honey producer. Yet the aftermath of that period brought ruin to many, and it is our concern now that we do not reach a similar conclusion, albeit the problems of today are different from those of 25 years ago.

This time we have limited the sale of honey. We have closed the door, or at best left open only a small crack, to new users. We have set a ceiling on prices to stop speculation. I believe all these actions have been wisely taken. But they will not be enough, for in order for us to hold the market that the present World Crisis has thrown at our feet we must supply it. On that one thing, more than any other, depends the future of honey production.

The business of honey production has several peculiar weaknesses. The most serious as it appears to me is our inability to increase production to meet an increased demand. It is a comparatively simple matter to double the nation's pork production. Most any farm commodity can be greatly increased within one year. But to double the production of honey in a short time is next to impossible. To try to do it by doubling the number of colonies proved ruinous to many beekeepers in that period after the last war. The same thing might happen now if we could get the equipment and the help to manipulate it. Such expansion has largely been forestalled by conditions out of our control. If an extra quantity of honey is to be produced during the present emergency it is largely up to the present honey producers to do it. The rewards are ample for those who can and will. The big question is "HOW".

Since rapid expansion does not appear too attractive from the standpoint of labor and material shortages, and the further limitations in the way of bee pastures, there is then but one way that looks attractive to me—namely, to produce more honey with the bees, the equipment, and the help we now have. It is the old story of making two blades of grass grow where one grew before; and it can be done!

I do not know if it is generally agreed, but I believe that the factor that controls the number of bees that can be successfully kept in a certain area is not so much the length nor the magnitude of the main honey flow, though these are important, as are the conditions that prevail both before and after the main flow. In other words, a location that may satisfactorily support the equivalent of 50 average colonies throughout the year may, and most likely will have nectar to spare and to spoil during the peak of the main flow. If we can get that nectar we will

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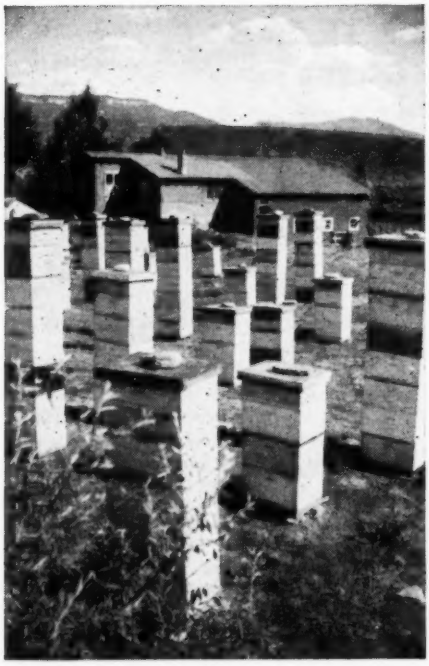


A part of our home yard in 1943 showing rear of the honey house.

have the basis for our security in the future. If we can secure this extra nectar we are doubly secure for in gaining this extra honey we not only increase our production, but we lower the cost per pound of that production. I wish every beekeeper in the country understood about those extra pounds of honey. They are there and he should be getting them. He needs them and the country needs them. It needs them now and it will need them in the years to come.

What about this talk of overproproduction we have heard? We may have had underselling, but never overproduction. The past two years we produced less than two pounds per person. Does that sound like overproduction? It is no wonder that there is talk of limiting the size of honey containers to one pound or less. We must produce more and more honey if we are to build a lasting market, for the market we are enjoying now is not an inflated one to the extent that it was during the last War. People are finding out that honey is good to eat, and many that once felt that they could not afford honey now find out that they can. But if we cannot supply it to them at a reasonable cost they are going to stop asking for honey. If they eat good American clover honey one day, and then next week get something made from the African "Gilly-dong" tree it is going to leave a bad taste in their mouths and I mean **literally**! That is not the way. The American honey industry needs more American honey. And if we ever do put on a national selling campaign for honey we will need a much larger production than we now have before we start.

Honey producers stand ready to make a step. Some have already taken the first step; others will follow soon; many will come along in a few years; but unless something is done to jar them from their lethargy I am afraid that a great many of our beekeepers will miss the boat. No one expects a great change to happen all at once. We don't have all the bees in movable frame hives as yet. But think how far we have come since all bees were kept in hives without movable combs. And so it goes with beekeeping. For years we have heard the terms, "young queens", "plenty of room", and yet it is difficult to imagine how few beekeepers give those terms the same meaning. It is even more difficult for them to agree on what constitutes a "large colony". And it is of large colonies that I speak. When I say large colonies I mean LARGE colonies; colonies with upward of 75,000 bees—a bushel or more. These are the colonies that when brought into a good honey flow will get the extra pounds of honey we have been talking about. As we learn to build and maintain large colonies in time for the main honey flow, so do we increase our chances for getting the four and five hundred pound crops.

It cannot be done by wishing.

To begin, we must first unlearn much of the old hide-bound lore so dear to our grandfathers. We must learn new meanings for the common terms of beekeeping. A "good" queen must come to mean a queen capable of maintaining many frames of brood throughout the season; and the expressions "Abundant stores", "Ample pollen", and "Adequate room" will run into conditions that we may not have yet explored. These words, Abundant, Ample, and Adequate may well become the "Triple A" of the new beekeeping. Let us look at these things one at a time.

Colonies with pollen traps. 12 pollen colonies secure our needs for pollen for 600 colonies.

A few sky high together with a couple of pollen colonies

First, the subject of queens: That is a source for pages of print and hours of discussion, perhaps the most important single item in the successful production of large crops of honey. Before we can accurately select queens, and more successfully control their production we cannot expect to have many colonies capable of reaching the enormous populations I have suggested. To accomplish them we will have to use two queens as outlined in the leading bee journals during recent years. The two-queen system besides giving the large populations capable of securing great crops of honey gives further opportunity for improving one's stock as each year the poorer of the two queens is eliminated. There is much work to be done in the field of queen breeding and handling. We need to know more about judging a queen. A queen's age alone is a poor guide to her fertility. We must learn to recognize points of quality as we would in a dairy cow or a laying hen. The word "young" when applied to a queen bee may be as misleading as the same expression applied to the female of our own species. A truly well bred queen often does not reach her peak until the second year, while many queens are born "old". A large percentage of chance raised queens as well as many produced by commercial breeders never have the ability to produce large colonies. And those that have the ability often do not get the chance.

The second part of this might well be called, "Giving the queen a chance". This is where the three A's above mentioned come in. A good queen given abundant stores, ample pollen, and adequate room, all arranged in their proper locations will perform wonders of bee production.

Let us first give a few words to stores. There must be far more than enough to prevent spring starvation. There must be a substantial backlog at all times if the best results are to be obtained. No colony can produce its maximum on a hand-to-mouth existence, for if one allows the colony to lose just part of one cycle of brood from starvation, egg laying slows down, and your chances for producing the top crop from that colony are over for that season.

Ample pollen must come to mean

a substantial reserve at all times. It is seldom possible to get sufficient pollen stored to take care of all the conditions that come during the spring build-up period. Even when sufficient plants are in bloom, bad weather will prevent the gathering of pollen on many days. No pollen,—no brood. The chances are that you will be feeding pollen trapped the previous year together with soybean flour before you ever have many colonies capable of producing the 400 and 500 pound crops. This is all set forth in bulletin E-531 of the Bureau of Entomology and Plant Quarantine, Beltsville, Maryland. Pollen trapping is not difficult, and is undertaken eagerly by beekeepers once the results are observed some cold, rainy spring between colonies that have a pollen supplement given and those that depend upon the natural supply. No one thing that we have done in our own apiaries here in Western Colorado has made such a great difference in the way of spring management. It has made it possible to secure a surplus from dandelions to replace the extra stores used by the larger colonies as well as filling extra supers of white honey when the main flow comes.

The subject of adequate room is of equal importance. Without it one will surely have trouble from swarming. It not only must mean room within the hive but also room to get in and out. The most important from the standpoint of swarm prevention is to provide room for the queen to expand her brood nest in a natural upwardly direction. This seems to be best accomplished by using not less than two brood chambers and by reversing them at intervals so that the combs of empty cells and emerged brood are above the young brood most of the time. This can be done by manipulating every ten days. Adequate super room may come to mean twice the amount of comb space once thought sufficient. This need for extra comb space has already caused followers of this system to look forward to a hive with more lateral capacity, for there is no doubt that hives piled above one's head become the source of much extra labor. The redeeming feature is that it pays well.

The importance of the proper location of the three A's must not be overlooked. The honey must be available on all sides of the cluster in winter, but may be below as spring advances for the bees will move it. The pollen must be adjacent to the brood to be of any value. Pollen stored in combs several inches away is of no use until the brood nest expands over to it. The pollen cakes should be fed directly over the brood. For this reason when feeding supplemental pollen it is necessary to have the brood nest in the top story. Super space is most effective when added immediately above the brood nest.

While the methods I have tried to outline deal mainly with intensive beekeeping, yet much of what is good for this type of beekeeping will work with limitations on an extensive scale. Not all temperaments of beekeepers nor all locations will permit the use of the huge colony. Some beekeepers I know just wouldn't want to be bothered with that much honey. Nor would colonies that are five stories high before the honey flow lend themselves very well to migratory beekeeping practices. The question of disease will have to be pretty well solved before one will want to tie up that much equipment in one unit. But then through our carelessness with disease we are already losing many of those extra pounds of honey that we should be getting at no extra cost. The disease perpetuating beekeeper will not be interested in what I have said anyhow. It is the careful, industrious producer that will succeed with the large colony. He is the man who will produce the extra pounds of honey, who will set the example for other beekeepers, and will gain for his industry a sound and lasting future.

"He takes care of our dark bees."

Swarm Control

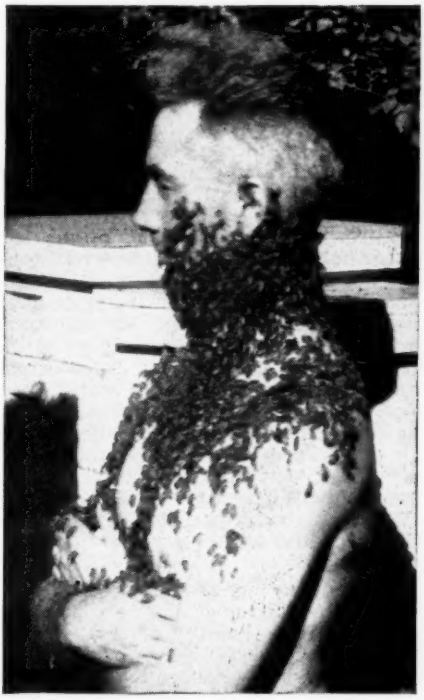
By John G. Jessup

Swarm control is going to be a greater problem than ever for me this year. The shortage of help makes it impossible to work 750 colonies and get through them every ten days. Too many swarms got away last year because the manipulations failed to secure the desired result. They were based on the experience of seasons when we could get around at least every ten days or two weeks. In those days if we found queen cell cups with very young larvae in them, swarming could usually be delayed until after our next visit by simply mashing the cells, and then providing the colony with ample room. Often we spread the brood by placing one or two frames of foundation in the center of the brood nest and adding another super above. Of course we always aim to provide additional combs before they are actually needed.

All of our combs have been sorted this winter and those containing drone cells set aside for rendering into wax. The good combs have been sorted into three groups. The first group contains the light combs that have never had brood reared in them. They are least apt to be attacked by the wax moth and will be the last supers to leave the honey house. In the second group we have placed the dark combs containing pollen and the dark empty combs are in the third group.

The queen prefers dark combs and pollen is an aid to early brood expansion. It is an important part of our swarm control procedure that these dark combs containing pollen are the first to be added in the spring —just as early as the colony is large enough to utilize additional space. No queen excluders are used, thus giving the queen the opportunity to expand her brood nest to the maximum of her ability. By putting in long days we hope to be able to carry out a program which will hold swarming down to two or three percent.

The first move will be the reversing of the two brood chambers in which the bees have wintered. This is not done until the upper hive body is well filled with brood. The condition of the colony, not the date,



John Jessup

must govern the time when the bodies are reversed. Some colonies may be ready for this manipulation weeks in advance of others.

The second step in swarm control is the equalization of brood. The colonies preparing to swarm soon are held in check by taking a frame or two of brood with adhering bees and giving them to weak colonies. As our third step we put on the supers of dark combs with pollen, as previously mentioned.

As the season advances we find some colonies starting queen cells. In the past if these cells were not sealed, we attempted control by adding additional supers. The brood was spread by placing two or three frames from the center of the brood nest in the super added above. They were replaced by two or three frames of foundation or drawn comb. If cells are just sealed but do not indicate swarming will be attempted in the next day or two, we Demaree; that is, we place the queen and one frame of brood in the lower hive body, filling the balance with combs or foundation. A queen excluder is

placed over this and two supers of drawn combs added. All the brood is placed in the supers above these three lower stories. This is not always effective. On the next visit we may find that any one of three things has happened. First, the colony may have a tremendous population well started in the supers and the queen laying at a great rate below the excluder, requiring the removal of two or three more frames of brood to the upper stories. That is what we hope for. Secondly, we may find that the colony has swarmed out anyway and left a few bees and our brood. Thirdly, the queen, if we failed to find her and took a chance on shaking all the bees in front of the hive, may be in the upper story with the brood and the job has to be done all over again. This system does have the advantage of requiring many supers of combs or foundation and gives the impression, from the height of the hives, that a bumper crop is on.

The "shook" swarm is our last resort. If a colony is about ready to leave the hive—sealed cells well advanced with possibly a young queen or two already emerged—we make the swarm then and there by shaking the bees from their combs onto new combs, giving all the brood and honey to other colonies.

This year we aim to anticipate swarming by using our control measures sooner than we have in the past. However, if it is a bad year for swarming undoubtedly we will lose a good many. Our most protected location this year will receive special attention. Last year colonies in this yard, which is surrounded by hills and trees on the north, west, and south, built up to swarming strength before the clover flow was ready. Just how many swarms left that yard we will never know, but our very low yield, the poorest of 23 locations, may be largely the result of swarming. At any rate, the supply of hollow trees must have run short, for at packing time one swarm still hung at the side of the bee yard, on the end of an elm branch fifty feet above the ground. The bees had built five ample combs well braced in the branches, far beyond the reach of a ladder.

Supers of drawn combs are all added at the top where the bees can use them as soon as needed. If we have foundation, however, this is placed below, just above the brood nest. It is not added until the honey flow is on, and then preferably given only to the strongest colonies.

Ventilation is a factor that should not be overlooked. We provide plenty by pushing the upper super or two back to provide an entrance just above the rabbit of the hive below, but no opening in the rear. Colonies located in the full sun will need more ventilation than those in the shade. Bees should always have enough air provided so that they will not hang on the outside of the hives and loaf. We used to provide cross ventilation by making the upper entrance at the rear of the supers, but found this inconvenient, because field bees used this for an entrance, and when we were working the colony, returning bees alighted on us in great numbers. If the entrance is at the front, the bees go in at the lower entrance.

Perry, Iowa.

[We used to make a small ¼ inch upper entrance at the rear of the double brood chamber to provide cross ventilation in the brood chamber. We now favor an upper front entrance made by pushing a super back about one quarter of an inch. This can be done without making any opening in the rear of the super. Some of the bees use this upper entrance which appears to be an advantage.—Editor.]

Carla Jean Stanius, 2½ years old, brought up on milk and honey. She is the daughter of Mr. and Mrs. M. L. Stanius, Hinsdale, Illinois.

Multiple Mating of Queen Bees Proved by Progeny and Flight Tests

By William C. Roberts

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Much has been written about the mating of queen bees since Janscha, in 1771, discovered that the queen mates outside the hive. There have been many reports of multiple matings, but beekeepers still seem to suppose that they are of exceptional occurrence. Most textbooks on beekeeping state that the queen mates only once, and although several mention multiple mating, Perret-Maisonneuve (10) alone, among texts consulted, indicates that a queen may mate more than once if her spermatheca was not sufficiently filled at the first mating.

The records of multiple matings covering the work of no less than 35 investigators have been reviewed by Nolan (8). All those making extended observations reported a number of queens returning with the mating sign two, three, or even four times. Although most observers found that the second or third mating occurred on the next day or two after the first, some of them observed two or more matings on the same day. Some observers believed that in instances of double mating the queens received sperm from only the last mating, but others opposed this view. In summarizing, Nolan states that it is anatomically possible for queens to mate more than once and that in practical experience many instances of successive matings have been observed.

Huber's observations (5) on the mating of queens deserve special mention, since he is perhaps the most frequently quoted of the early writers on bees. He stated that in the course of numerous experiments he had found only two queens that required more than one mating to become fertile. In making his observations, he used excluder guards over the hive entrances and allowed the virgins to fly when they were seen attempting to get out. If a queen returned from her flight without the mating sign, she was allowed to enter and the guard was replaced. Further watch was kept of that colony, and the virgin was permitted another flight when she appeared at the entrance again. When the queen returned with signs of having met the drone, the guard was replaced and no further observations were made for two days, at which time the colony was examined for eggs. Additional flights were then permitted if the queen had not begun egg laying. It is clear from Huber's data that he did not allow his queens to mate more than once, even though they may have desired further matings, unless they failed to begin egg laying within two days.

In 1924 Gentz (4) observed the mating flights of nine queens and concluded that queens usually mate twice. From extended observations covering several years De Mamers (7) reached the same conclusion. During 1937 and 1938 Oertel (9) made a number of observations on the flight of queens in an effort to determine the age at which they mate and the duration of their flights. Of 36 queens observed, four mated twice. However, Oertel states: "It is possible that more mated queens would have flown again if given the opportunity, but previously not much attention had been given to the guards [queen excluders] after the queens' return with evidence of mating."

It is evident that the queen must be plentifully supplied with sperm to lay fertile eggs in large numbers for one or more years. Mackensen (unpublished data), using a haemocytometer, has shown that the seminal vesicles of a mature drone contain about ten million sperm, whereas the maximum number found in the spermatheca of queens was slightly over seven million. The question arises as to how much of this normally enters the spermatheca as the result of a single mating. Leuckart (6), Shafer (11), and Bishop (3) have shown that in copulation the contents of the seminal vesicles are discharged

*In cooperation with the Louisiana State University.

into the lateral oviducts of the queen. The sperm must then travel through the median oviduct and the spermathecal duct into the spermatheca for storage.

A summary of what is known about the mating flight was published by Betts (2) in 1939. Von Berlepsch (1) suggests that fertilization may not always be accomplished on the first mating. He considers it possible that the opening to the spermatheca could be obstructed during the first mating or, as Dzierzon says, may be only partly filled by one mating so that the queen's desire to mate has not been completely satisfied. According to De Mamers (7) even though one mating is sufficient to stimulate egg laying, additional matings may be necessary for a queen to be supplied with enough sperm to insure fertile eggs for two or three years. Potentially good queens may thus become poor producing queens if the spermatheca is not filled.

Flight Observations

Observations on the flights of 40 marked virgin queens were made in June, 1939. All queens were reared from one breeder, introduced into nuclei as cells, and marked with various colors for identification. Queen-excluder guards over the entrances of the hives prevented the queens from escaping without being observed. Consequently all desired flights may not have been permitted. When a virgin appeared at the entrance, the guard was removed and she was allowed to fly. Immediate replacement of the guard prevented the queen from reentering the hive until she was examined for signs of mating. Preliminary investigations revealed that few queens appeared at the entrance before the age of six days. Observations were made daily from 12:30 to 5 p. m., which included the period during which most queens and drones fly.

The 40 queens made a total of 88 flights, the number ranging from one to five per queen. All queens returned once or twice with the mating sign. Nonmating flights lasted from 4 to 19 minutes, with an average of 11 minutes. Mating flights lasted from 5 to 31 minutes, averaging 14.4 minutes.

Nineteen queens mated on their first flight and nine of these did not leave the hive again. Nine queens left the hive only twice and mated on both flights. Twenty-one mated only once and nineteen mated twice. Two of the single-mated queens made additional flights after once mating. Of the queens mating twice, seventeen mated on successive days and two had an interval of one day between matings. Several queens made additional flights either before or after mating one or more times. Therefore, a number of queens might have mated or flown more times if it had not been necessary to have guards at the entrances. Sixteen double-mated and nine single-mated queens were successfully introduced into full colonies in July and August. When these colonies were examined in March of the next year, two double-mated and four single-mated queens had been superseded. The double-mated queens appeared to be more productive than the single-mated ones.

As only one breeder queen was used in 1939, it was suggested that the multiple matings might be characteristic of that particular strain of bees. Consequently in 1940 additional observations were made from daughters of three breeder queens. One breeder was a double-mated queen saved from the earlier work; the other two breeders were selected and unrelated strains.

The results do not differ greatly from the observations of the previous year. Of the 70 queens in the three groups, 36 mated twice and 34 mated only once. The percentage of single and double matings in the progeny of the various breeders were not significantly different. It therefore appears that a tendency to mate more than once is not a characteristic peculiar to one strain.

Two queens made flights after returning with the second mating sign, but did not mate for the third time. One queen mated twice on the same day. She made her first flight on May 7 but did not mate. On May 8 at 2:32 p. m. she was allowed to make a flight, from which she returned at 2:42 bearing the mating sign. After entering the hive, she appeared at the entrance at 3:07 without the mating sign and was allowed another flight. At 3:14 she returned with another mating sign.

Of the double-mated queens 29 mated on successive days. Of the others six mated two days and one mated three days after the first mating. This delay was probably due to the unfavorable weather, for most queens mated on successive days if

flight conditions were favorable.

A greater proportion of the single-mated queens made flights after mating than was observed in the earlier work, 12 out of 34 in 1940 and only 2 out of 21 in 1939. The failure of these queens to mate again cannot safely be taken as an indication that they did not desire another mating. On the contrary, it should be interpreted as indicating that more double matings probably occur in nature than were observed under controlled conditions.

The duration of the mating and nonmating flights is summarized in Table 1. The nonmating flights occurred most frequently in the 6-10 minute interval, and the mating flights in the 11-15 minute interval. This corresponds closely with the average of 10.4 minutes for the nonmating flights and of 15.8 minutes for the mating flights.

Table 1. - Duration of flights in 1940

Time, in minutes	Number of nonmating flights	Number of matig flights
2 - 5	45	5
6 - 10	55	29
11 - 15	24	38
16 - 20	15	19
21 - 25	5	9
26 - 30	4	3
31 - 35	3	4
36 - 40	1	3
41 - 45	0	3
46 - 50	0	1
Total	152	114

The flights occuring in April, May, and June are compared as to duration in Table 2. It is evident that the mating flights were considerably shortened as the season advanced. These differences are mathematically significant, whereas for the nonmating flights they are not significant. The shorter mating flights in June were probably due to the increase in drone population.

Table 2. - Seasonal variations in duration of flights in 1940

Period of observation	Average duration, in minutes Nonmating flights	Mating flights
April 9-10	9.7	19.3
May 7-9	9.9	15.3
June 3-6	11.4	11.9

Since the majority of queens begin egg laying within two or three days after their first mating (9), these results may have some bearing upon commercial queen production. When, for example, the queen breeder introduces a number of cells at one time, the virgins will mate within a few days of each other. If rain or other adverse weather conditions during the mating period restrict flights for several days, it is evident that a number of these queens will be prevented from making all desired flights. Incomplete fertilization will also result from an insufficient supply of mature drones at the proper time. Both these conditions would tend to increase the number of queen failures later in the season and support the belief of some beekeepers that queens reared early in the spring are inferior to those reared later. Although the queen breeder cannot control the weather, he can increase the chances of complete fertilization of queens by providing large numbers of mature drones at the right time.

Mating Station Tests

Inasmuch as queens often return from their mating flight within five to ten minutes, it has been assumed that they meet the drones a short distance away from the hives. If this assumption is true, by choosing isolated locations and furnishing an abundant supply of drones, it should be possible to obtain selected crosses with a high degree of success.

In 1942 an attempt was made to check the percentage of selected matings that could be obtained at two isolated mating stations. The surrounding territory was searched for other bees. Four colonies one and three fourth miles (air line) northeast and four other colonies two miles east were the nearest known bees to one selected location, which is here called the East yard. The workers and drones in these colonies were black, and it was believed that all other colonies nearby were also dark in color. Near the other mating station, called the Folsum yard, no colonies were found, but a few black workers were seen a half mile away. These bees were caught from flowers and when released all flew in a direction away from the mating station.

A breeder queen was chosen from a pronounced yellow strain that had been bred by artificial insemination and selected because of uniform coloring for seven generations. The progeny of queens from this strain were uniform yellow with slight variation within a definite range of color pattern. From this breeder queen a number of virgins were reared, marked, and established in nuclei at the mating stations. These queens were allowed to mate naturally without in-

terference or observation. Drone brood, progeny of six sister queens of the breeder queen, was established in colonies at the mating stations before the drones emerged. By careful checking of the drone colonies and nuclei before the queens mated, it was ascertained that only the selected drones were present in the yard.

As a check on the results of the natural matings, a number of sisters of those naturally mated queens were artificially inseminated with sperm from drones taken at random from the drone colonies at the mating station. If the queens at the mating stations mated with the drones provided, their progeny should be similar to that of the artificially inseminated queens. Other yellow queens were inseminated with sperm from both black and yellow drones or from black drones only.

A sample was taken of 50 worker bees representing the progeny of each naturally mated queen, and the individual bees were classified according to color pattern (Table 3). Samples of 100 bees from the progeny of the artificially inseminated queens were also classified according to color pattern (Table 4).

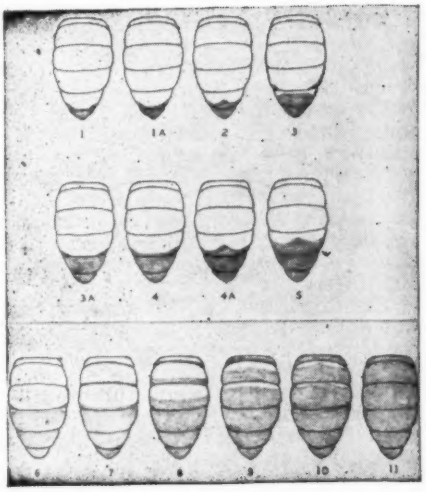


Figure 1.—Chart used in classifying worker bees on the basis of the amount and distribution of black and yellow coloration on the abdominal tergites.

The more common patterns of abdominal coloration found among worker bees, arranged in order from the one showing the least black coloration to those entirely black, are

Table 3. - Color classification of worker progeny of naturally mated queens at two mating stations

Queen No. *	Number of progeny in indicated color class							
	1	1A	2	3	4	4A	6	7
				At the Folsum yard				
70		33	17					
71		43	7					
72		37	8					5
73		11	4					35
74		44	4		1			1
75		47	3					
76		38	12					
77		8	15	2				25
78	6	44						
79	2	35	8	1				4
80	3	26	2				1	18
82	3	32	2	1			1	11
83		39	11					
84		34	11					5
85		36					1	13
86	1	45	4					
87	1	46	3					
				At the East yard				
88								50
89		6	1	1		4	5	33
90		15	10	9				16
91	1	5			1	2	5	36
92		5	3				2	40
93		2	6	6			2	34
94		19	2	2			5	22
95		6	1				12	31
96		2	4	2			2	40
97		10	2	1				37
98		14	4					32
99		23	1					26
100		14	4	3				29
101		19	9					22
102		4	3	1				42
103		8	4	1				37
104		16					3	31
105		2	3	8				37

*All daughters of breeder queen No. 57.

Table 4. - Color classification of worker progeny of yellow queens artificially inseminated with sperm from yellow drones, black drones, and both yellow and black drones.

Queen No. *	Number of drones from which sperm was taken: Yellow	Black	Number of progeny in indicated color class: 1A	2	3	3A	7
First generation:							
27	1		80	20			
32	1		17	56	26	1	
33	2		8	21	48	1	
34	2		51	34	15		
38	2		54	40	6		
107	2		40	50	10		
111	2		19	50	30	1	
112	1			18	80	2	
Second generation:							
3	1	1	13	45	1		41
9	1	1	13	25			62
10		1					100
11		1					100

*First - and second - generation of progeny of breeder queen No. 57.

shown in Figure 1. Variations from these examples were often found, and such bees were placed in the next class showing more black.

From the color of the progeny it is evident that the majority of the naturally mated queens (Table 3) received sperm from both black and yellow drones. Since all these queens had progeny in the light yellow classes, 1A and 2, it is certain that they mated with drones of pronounced yellow color. These drones must have come from the provided drone colonies. Since none of the queens artificially inseminated with yellow drones (Table 4) had progeny darker than class 3A, it is evident that the naturally mated queens having darker progeny mated with other drones than those supplied. Therefore, it seems safe to state that one and three fourths miles does not insure isolation from other drones.

The first unexpected occurrence observed in these results is the large number of mismatings. Yellow queens artificially inseminated with sperm from black drones gave progeny of uniform color, all falling into class 7. All the queens mated at the East yard and 9 out of 17 mated at the Folsum yard had progeny in class 7, indicating matings with black drones.

The second surprising result is the large number of naturally mated queens, 26 out of 35, having progeny in both class 1A and class 7. These queens had progeny similar in color distribution to queens that were inseminated with sperm from both black and yellow drones. It must therefore be concluded that the naturally mated queens having progeny in both class 1A and class 7 were mated to both black and yellow drones, and that the remaining 9 queens were mated only to yellow drones or, in the case of queen No. 88, only to black drones. It may be that some of the 8 queens having only yellow progeny mated more than once. The laws of chance would favor more such double matings, since there was an abundance of yellow drones at each mating station.

The results of these mating-station tests indicated a larger percentage of queens mating more than once under natural conditions than were recorded in the flight observations in 1939 and 1940. The queen-excluder guards in the earlier experiments may have been more of a hindrance to queen flights than was suspected. Furthermore, an abundant supply of drones at a mating station does not insure selected matings. To say that the queens preferred black drones to yellow ones or that the black drones were more vigorous fliers, and consequently succeeded in their endeavor more often than the yellow drones, is mere conjecture. No data are available to support or disprove these statements. However, the yellow drones were the result of seven generations of selected close breeding, and it can be assumed that they were not endowed with vigor. On the other hand, 34 of the 35 queens certainly mated with the yellow drones supplied, as evidenced by their progeny.

Summary

Studies were undertaken to determine the frequency of multiple matings of queen bees.

During 1939 and 1940 flight data were obtained on 110 marked queens that were permitted to fly from nuclei during observational periods. Fifty five of these queens mated twice, the second mating generally occurring on the day after the first, although one queen mated twice on the same day. Fourteen single-mated

(Continued on page 303)

Apiary Management During the Main Flow

Sidelights on Being Ready, and Swarm Treatment

By Bruce Morehouse

Any account of bee management should take into consideration many factors that might effect the ultimate object of producing a maximum amount of surplus honey.

So far no one has advocated a set colony management that works equally well year after year, even for the same location, because bees arrive at the honey flow (about June 10th here in Minnesota) in different condition on succeeding years. Last year many colonies were weak and some actually starving on June 1st, because of a wet chilly spring. For three years now we have had a honey flow that cuts off a month sooner than formerly. So, honey flow management should be as flexible as the differences in colonies and the expected honey flow duration.

Here the writer has kept in mind actual performance, facts rather than theories, gathered from eighteen years of experience. For a treatise on colony management, with details, the reader may write to those in charge of beekeeping instruction in most every state. There are books on beekeeping practices. But many beekeepers know from experience how much of these given formulas to apply to their colonies and a few other things, besides. And, by the way, nothing seems to take the place of a subscription to one or two good bee magazines, for "keeping posted".

Honey flow management begins right after each main yearly flow. Certainly the prudent beekeeper will make sure in the fall of queens, winter feed, and wind protection. In winter he should repair hives, melt drone combs, build new frames, etc., so this work will not hold up operations in July. In spring he should build up the colony strength. If these operations have been successful he will have most colonies of uniform strength by June 10th. Yes, being ready, with as much of the work done as possible, is certainly a part of honey-flow management.

As an efficiency measure we like to have the supers close at hand when needed. We have a system whereby each colony gets the same supers year after year, if they can fill them. This was inaugurated as a disease control measure. In April or May we distribute all supers, placing them between the inner and metal covers, ready for reuse. For instance, supers number 623 go to the 600 yard, group 2, and number 3 colony in that group. With this system we can look at any super in the honey house and recall by the number exactly from what colony it came. All our yards are set out in groups of eight, and are winter packed that way (see the Oct. 1936 Gleanings).

Another practice we employ is to put only nine frames in each 10-frame standard body, both brood nests and supers. Since the hives are

The Lund Yard in 1943.

not jostled by moving any distance, like on a truck to some central cellar, there is no need to have ten frames tightly wedged into the brood bodies. There is no denying that it is easier for the beekeeper to handle nine frames in brood box examinations, so why not? Uudoubtedly, there are perfectly logical theories for ten frames in the brood nests but actually in our yards we prefer to have only nine frames. We do put ten new frames with foundation in each super.

Certain general operations are given at one time to all colonies in an apiary and in this sense it may be called "apiary management", but the colony is the unit, the same as each cow in a herd. In April, as we unpack, we check all colonies for queenrightness and feed stores. In May most colonies get another super of good brood combs. As the sweet clover flow begins in June some colonies are ready for another super. Then, if all goes well, more supers are added as needed, besides the brood and food chambers. But the best laid plans are more often than not put out of timing by one cause or another; for instance, how many beekeepers always get around on the ninth day after a certain operation? It may be two or three weeks later!

The Swarm Gremlin

We have a notion that the beekeeping professors are all wrong about what causes swarming. The real cause is the swarm gremlin, a little mischevious fellow who delights in upsetting the colony equilibrium. Swarms, like revolutions, are bred in dissatisfaction, and the ringleader of swarm revolutions is the swarm gremlin. He is the wag who induces workers to build swarm cells and nags the queen into a swarming fever. Then he scoots out and enters another hive. We caught sight of him just once and in some ways he looks much like a regular honeybee. We believe there must be a helpful bee gremlin, too, but thus far have not seen him.

Many beekeepers blame the queen for swarming when they should blame the beekeeper for doing or not doing the proper thing. All too frequently the swarm that hangs on the tree was put up there two or three weeks before, by neglect or by misjudgment of the right colony operation. The swarm gremlin likes a neglected colony because neglect lets him into the hive. If a beekeeper has a strain of bees that does not swarm from neglect or mismanagement, he is fortunate, but most of us know there is considerable room for improvement in this direction.

With colonies that keep working along, to add another super as bee strength and pasturage indicate, is easy enough. But, can somebody tell why so many colonies persist in swarming operations? Keeping those colonies at work is a problem that has ruffled the brow of many experts. Whether one resorts to queen cell cutting, demareeing, dividing, about-facing, moving, or other operations, they all have the purpose of saying, "break it up, bees, and get back to work". (After some drastic treatment we sometimes remark, "There, laugh that off, if you can". Even then,

B. L. Morehouse on Group 6 in the Lund Yard.

the swarm gremlin may persuade them to fly out!)

Every colony that shows swarming tendencies gets some kind of treatment. The aim of swarm treatment is to change the direction of effort in the colony, from that of wanderlust to that of domestic tranquility. How severe that treatment should be depends upon not just the fact that the colony shows swarming tendency but should be governed by colony strength, strength and expectancy of the remaining honey flow, and expected colony performance as indicated by the colony history. There may be other influencing factors.

For the perverse colonies it would be nice to say that we do a certain thing and it always works. Actually, we study each colony condition, the expected honey flow, the colony record thumb-tacked to the inner cover, and then make an "on-the-spot" decision of the treatment for each particular colony. True, sometimes we do more Demareeing than other treatment. And, like other beekeepers, we sometimes look back with a lament that we should have done differently.

There is a little trick we play on the colony that wants to swarm between July 15 and August 15. We supply any room needed, and kill the old queen, leaving a capped cell in the brood body below an excluder. Then, a younger queen cell is placed in a top super set ajar. This is just to make **sure** there will be a queen. There is no particular need for the old queen since an egg laid then cannot develop into a honey-gatherer until fall and young brood will eat up just that much honey. If two queens develop there is usually a need for one elsewhere.

June and July Operations

Suppose it is June, the honey flow is just well started, the colony strong, it produced well last year as shown by the history card, and we need some division colonies to make full groups. A swarming condition appears in this particular colony and the bees will fly away if something is not done. We may confine with excluder the old clipped queen on one frame of brood with plenty of empty combs. Then an empty super and above that, part of the brood. Half or more of the brood with one capped cell and perhaps a very young larvae cell is left in the division, which is placed above the parent colony. More than half the bees in the hive are shaken into the division because many will return below, and all bees out in the fields. On the next visit if the two queens are doing all right, we may add supers and remove the division to the vacant stand. Or, if the old queen is to be replaced we may decide to unite then, or later. This treatment is risky but better than deliberately letting the colony swarm.

These swarm control operations supply many colonies with their supers, but for the built-up colony that will need a super soon we place the first one directly above the food chamber as a rule, without an excluder. We learned the old way of supering next to the brood chamber and when the colony is torn down for brood box examination we usually put the second empty super on over the brood body and raise the first super and the food chamber. Bodies of new frames with full sheets of foundation are placed just above the brood chamber. If necessary to use an excluder it would be placed above this foundation, and we like to get this foundation on soon after the main flow starts, leaving some empty drawn supers for the slower part of the flow. As the swarming tendency lets up we switch to top supering, which certainly cuts down on the work. We have not mastered the art of top supering as some beekeepers report, or perhaps it just works better with their kind of a honey flow. We do use queen excluders in most of our colonies but like to hold off with these as long as we can.

Successful honey flow management is the ability to make the right decisions not only during the flow but the year around. Good management should be as flexible as our varied conditions demand.

So, we close as we began, stressing that good bee management hinges around the central idea of building strong colonies that will do an efficient job of honey gathering. Everything points cooperatively to that end: hive manufacturers make every little improvement possible to furnish the best in equipment; the queen breeders and Government laboratories are striving to improve honeybee stock; and we beekeepers work for supers that are packed from side to side with Nature's finest sweet—HONEY!

Montevideo, Minnesota.

Wintering Queens in Nuclei

By M. J. Deyell

There has been such a dearth of queens this spring that it behooves beekeepers to winter over good young laying queens, if possible, so that they may be available early in the spring when and where needed.

In the Asked and Answered department of June, 1944, Gleanings, there appeared a question regarding the wintering of extra queens. We did not encourage the practice, especially for outdoor wintering in the North.

Some years ago we wintered five-frame nuclei in double queen mating hives placed in our bee cellar. Each hive had a tight fitting division board and the hive had an entrance at either end. The two nuclei clustered up tight to the division board forming a compact cluster resembling a sphere. Each nucleus was in reality a hemisphere. This, of course, was the most economical method for the bees to conserve on heat.

We tried wintering three nuclei in one divided hive, outside, over a screen on top of a strong colony with small individual entrances for the nuclei, but with no success.

C. B. Gooderham, Dominion Apiarist at Ottawa, Canada, wrote us under date of December 28, 1943, as follows:

"On page 359, June issue of Gleanings in Bee Culture, I noticed a question and answer re the wintering of surplus queens. As the question contains reference to our work here in Canada, I read the reply rather carefully and in view of the results we have obtained, I think the idea of wintering surplus queens was rather under-rated in the answer given.

"I have just checked over our results for six winters, 1935-36 to 1940-41, and these show that of 46 queens in double nuclei and wintered in the cellar, only one of them was lost. During the same period, 42 queens were wintered in double nuclei outside in packing cases with a loss of only two queens, proving they can be wintered outside, and in the cellar.

"We have also been experimenting with three and even four nuclei in one hive, but cellar wintering only. We have found them somewhat risky, for in some years they come through with little or no loss, while

Three double nuclei in outside wintering cases at Ottawa, Canada.

in other years the loss is comparatively heavy, but not enough so as to cause us to abandon the idea of more than two queens to a hive.

"As you are well aware, it is not so easy for us to get early queens in the North. We must depend altogether upon southern breeders which entails delay and risk getting the queens through. The idea of the experiment was to encourage our beekeepers to winter over a small surplus of queens for emergency requeening in the spring, and it can be safely done without loss of colonies. If two nuclei are placed in one hive during late summer, or two weak colonies are brought together in one hive during the fall and a bee tight division board placed between them they will winter as well as a full colony with a single queen. In the spring one of the queens could be taken for introduction to any colony that needs requeening, the division board withdrawn and the bees of the two nuclei will then unite quite readily under the remaining queen. On the other hand, should no emergency requeening be needed in the spring, one nucleus from each double can be transferred to a single hive and such nuclei should at least equal imported packages. A good many beekeepers now make a practice of wintering surplus queens in double nuclei."

Fruity and Good

By Mrs. Benj. Nielsen

We will have a new rhubarb that is red all the way through. Goodbye to the bottle of red vegetable coloring! The things we will do with those bright tender stalks—pan dowdy, pie, upside down cake, and honeyed sauce. There will be strawberries and

Honey rhubarb pan dowdy.—Photo courtesy of Kenyon & Eckhardt, Inc.

Well over 100 holes have been dug in the acreage surrounding the Nielsen's newly acquired home. No, we are not digging for oil. These methodically spaced holes are for fruit trees and bushes. The man of the house gingerly sits down with a softly expelled (?) groan and remarks, "I'm a little stiff!" (Little? Hm! I think. But then sometimes it is the better part of wisdom not to say what one thinks. So far he has just hinted that my help would be welcome—if I am not diplomatic I may have sore muscles, too!) Tired aching muscles will be forgotten as we marvel over the green, leafy growth; thrill at the sight of snowy white and pale pink blossoms; anticipate the luscious goodness of honeyed fruit treats. Ummm!

Our snowy white hives are at the north end of a gentle slope—just as far away from the house as the boundary line permits. What the inhabitants of those hives will do for those blossoms-yet-to-come! Garden in the center, blossom laden trees and bushes on three sides—what a picture that will make! Our kitchen windows face the west; methinks a window shall be cut in the north wall when we remodel the kitchen. I must watch this miracle unfold as I work.

The man of the house and our honey-fed nine-year-old Don slipped around in mud-caked overshoes to set out the stock. Ladies, you can imagine what the back porch and stoop look like! All this will be forgotten when we pick the first glossy berries, pull tender shoots of rhubarb and do the proper things with honey—to say nothing about when we survey rows and rows of gleaming jars of honey canned fruits and juices. There just isn't any more satisfactory way to use honey than in combination with fruit. If you have never tried it, dear reader, put it off no longer!

raspberries sparingly coated with nature's finest sweet, honey gooseberry pie, currants and honey to make a superbly rich bar le duc, berry pies; and we dream ahead to years highlighted with honey apple pies (apples and honey from the Nielsen acreage) cherry pies, apricots, peaches, and pears in sparkling honey syrup.

Folks, if you are already harvesting your fruit or can buy some, do try some or all of these tasty honey treats. Honey plus fruits equals a natural quick energy, unsurpassed flavor blends, and heaps of health promoting vitamins and minerals.

Honey Rhubarb Tapioca

Three tablespoons quick cooking tapioca, 2 cups water, 2 cups diced rhubarb, ¾ cup honey, 1 tablespoon lemon juice, ¼ teaspoon salt, 1 tablespoon Knox Sparkling Gelatine, and a few drops of red vegetable coloring if desired.

Soften the gelatine in a little cold water. Then combine water, rhubarb, honey, and salt. Cook over rapidly boiling water until the rhubarb is soft and the tapioca clear. Remove from heat and add lemon juice and softened gelatine. Pour into mold rinsed in cold water or individual serving dishes. Chill until firmly set. Serve with honey sweetened whipped cream or soft custard.

Honey Rhubarb Pan Dowdy

Four cups diced fresh rhubarb, ¾ cup honey, 1 tablespoon butter, ½ cup shredded bran, ¾ cup milk, 2 tablespoons honey, 1½ cups sifted enriched flour, 1 tablespoon baking powder, 1 teaspoon salt, and ⅓ cup shortening.

Arrange rhubarb in baking pan; pour honey over fruit and dot with butter. Soak the shredded bran in the milk and honey. Sift flour, baking powder, and salt together. Cut in shortening until the mixture is

like coarse cornmeal. Add soaked shredded bran and mix until all dry ingredients are moistened. Drop by large spoonfuls onto rhubarb and spread lightly to cover rhubarb. Bake in moderate oven, 375 degrees F., 35 to 40 minutes. Yield: 8 servings.

Honey Rhubarb Pie

Three cups diced rhubarb, ¾ cup honey, ½ teaspoon grated orange rind, 3 tablespoons flour, ⅛ teaspoon salt, pastry, and 2 tablespoons butter.

Combine rhubarb, honey, orange rind, flour, and salt. Fill a pastry-lined pie pan; dot with the butter and adjust the top crust. Bake in a hot oven, 450 degrees F., 10 minutes, then reduce heat to 350 degrees and continue baking for about 30 minutes. Yield: 1 9-inch pie.

Honey Rhubarb Upside-Down Cake

Two cups diced rhubarb, ½ cup honey, 1 tablespoon flour, 1 teaspoon grated orange rind, 1 teaspoon cinnamon, 1 cup flour, 2 teaspoons baking powder, ½ teaspoon salt, ¼ cup shortening, 1 beaten egg, 2 tablespoons honey, and 3 tablespoons milk.

Topping

Two tablespoons orange juice and 1 tablespoon honey.

Arrange the diced rhubarb in an 8-inch baking pan which has been well greased. Combine honey, flour, orange peel, and cinnamon; spread over rhubarb. Sift dry ingredients together; cut in shortening until the mixture resembles coarse crumbs. Mix egg, honey, and milk; add to the flour mixture stirring just until the flour is moistened. Spread this stiff dough over the rhubarb. Bake in a moderate oven, 350 degrees F., for 25 minutes. Remove from oven and pour over the topping made by combining the orange juice and honey. Return to oven and continue baking for 15 minutes. Turn upside down on large plate. Serve warm.

Honey Orange Charlotte

One envelope (one tablespoon) Knox Sparkling Gelatine, ¼ cup cold water, ½ cup boiling water, ½ cup honey, ¼ teaspoon salt, juice of 1 lemon, 1 cup orange juice, 3 egg whites, and lady fingers or sponge cake.

Soften the gelatine in the cold water and dissolve in the hot water. Add the honey, salt, lemon juice, and orange juice. Cool, and when the mixture begins to thicken, beat until fluffy and light. Fold in the egg whites beaten stiff. Turn into mold that has been lined with lady fingers or strips of sponge cake and garnish with maraschino cherries. Chill, and when firm, unmold onto platter. Serve with whipped cream or custard sauce.

Honey Strawberry Ambrosia

One quart strawberries, 1 fresh pineapple, 1 cup shredded coconut, ¾ cup of honey and ½ cup of orange juice.

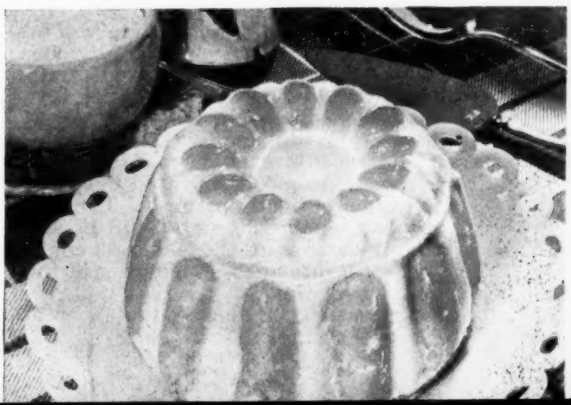
Wash and hull thoroughly ripe strawberries. Slice, pare, and core the pineapple, then cut in wedges. Arrange alternate layers of berries, pineapple, and coconut in a glass bowl, sprinkling honey over each layer. Pour orange juice over all. Chill thoroughly. Serves 8.

Honey Apple Pie

Six large tart apples, 2 tablespoons flour, ⅔ to ¾ cup honey, depending on the tartness of the apples, ⅛ teaspoon salt, 1 teaspoon cinnamon, ¼ teaspoon nutmeg, pastry, 2 tablespoons of butter, and 1 tablespoon of lemon juice if tart apples are not available.

Pare the apples and slice thin; add the flour mixed with the honey, salt, and spices. Fill pastry-lined pie plate. Dot with the butter and adjust the top crust. Bake in a hot oven, 450 degrees F., for 10 minutes, then reduce heat to 350 degrees F., and continue baking for about 30 minutes. A dash of grated lemon rind makes a delightful variation. Serve hot or cold, plain or with honey vanilla ice cream.

Aurora, Nebr.



Honey orange charlotte.—Photo by Kenyon & Eckhardt, Inc.

From the Field of Experience

PLANNING FOR THE BUCKWHEAT FLOW

By Raymond Bentley

Object: To build up colonies for the buckwheat flow extending from August 10th to August 31st.

Plan: G. M. Doolittle, one of the most careful observers on bees, said that eggs for honey gatherers should be laid 37 days before the honey flow begins. This means that eggs laid before July 14th will make field workers just in time to gather the nectar from the first and die, worn out, gathering nectar from the last of the buckwheat blossoms.

Eggs laid after July 14th will result in honey gatherers that will be too young to work in the field during the first of the flow. In so far as there is usually a three weeks honey dearth just previous to the flow, bees becoming of field-working age during this period find themselves but slightly the worse for wear and can do a creditably good job on the flow. This means all eggs laid after June 23rd and until August 3rd are destined to produce foragers for the buckwheat flow. Our aim then is to have the largest possible number of eggs laid during this period.

Procedure: To obtain the above goal I make four visits to my apiaries and perform the following operations:

April 15: Unpack all colonies. (The colonies are wintered in three hive bodies.)

June 20: The clover flow is nicely started at this time and is very beneficial to all manipulations as well as a stimulant for future egg laying.

Shake all bees with queen into lowest body; put on queen excluder and equalize the brood in the two bodies above and let stand two or three hours. Set each of the bodies above on separate hive stands with bottom and cover and introduce laying queens to each. Give super to hive left on old stand with old queen. If the set-offs each have 5 or more frames of brood their rapid development is practically assured. The colony left on the old stand will generally be at about the same strength as the set-offs at the beginning of the buckwheat flow.

August 10: Super. Give all colonies at least two empty full-depth supers. Comb honey supers may be used.

October 1: Take off all honey. Pack for winter, uniting the two set-offs with the colony left on the old stand. The set-offs are placed above the colony with the old queen to assure a young queen for the next season.

Results: No swarming. No heavy supers tiered up over the head to be lifted. All colonies requeened. Colonies reach peak of strength at and not before the flow. Morale and energy of colonies always at its best for the flow. All the above with only four trips during the year.

South Lansing, N. Y.

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PACKAGE BEES FINALLY CAME —AND HOW?

By C. R. Lautenburg

Some time ago, I ordered five 3-lb. boxes of bees and five hives, supers, etc. This order had been placed several times and each time I was informed that they were out of stock.

Lo and behold, last Monday the postman entered my humble office, carrying five packages of bees and followed by at least a couple of hundred lonesome stingers who managed to evade the wire cage somehow. He was only too happy to place the packages on the floor, gently, ah, so gently, and go his way as fast as he could.

There was I, with fifteen pounds of bees, five queens, and no place to put them. Immediately I ordered a five-hive unit. I called my long suffering wife and asked her to call for me in the car, making definite and certain she did not know what I had up my sleeve, or rather, in the packages.

In the meanwhile, the liberated bees were exploring my office and did much to destroy the peace and quiet of my co-workers. Taking my packages and trailed by bees, I took the elevator down. I prevailed upon the operator to wait until the last bee entered the cage and I walked out of the building with the felt but unheard imprecations of the employees and tenants.

During this time I had a mental impression of the picture one sees so often in text books on bees of a man

wearing a false beard composed mainly of bees. I wondered how I'd look in a beard of bees.

While I waited for my car, I was more or less surrounded by a mass of curious people and all kinds of smart remarks were hurled my way. But my satisfaction consisted of the fact that these crackers kept a respectful distance away from the cloud of bees which were settling about me. For some unknown reason the bees seemed to regard me as a sort of father protector.

The car finally came and I placed the cages and as many bees (unattached) into the rumble as I could get in there and drove to the store to get the hives. At home, finally, I opened the rumble and now a holocaust of bees were waiting.

I carried the packages to the rear of the house and placed them on the floor. The others, the free fellows, followed of their own accord.

Fortunately, I had some sugar and a brush. I made a syrup of half water and half sugar and brushed this sticky stuff on the cages and placed a big pan of it nearby (for the unrestrained followers) with some twigs and branches for them to climb on.

Then to carpenter work in a hurry. I found it takes a steady hammer and an iron thumb to put things together. The directions were extremely simple and the parts seemed to fit just right. My blessings on the man who thought them up!

About eight that night I was finished with my woodwork and I set the hives up. To wear, or not to wear, a bee veil and carry a smoker? I was too tired to bother, so I picked up one package, took it to the hive, pried up the wooden cover, and pulled out the food can.

That was where the trouble started. The bees came out of this hole as though they were attached to wires strung on the can. I don't believe I ever moved faster in my life than when I clapped the inner cover and hive cover of that hive. This same thing occurred in each hive as I placed the cage in the hive.

I think I earned my supper that night. Before I forget, while I carried the bees and was escorted by them, the noise they made sounded like a P-40.

My bee-havior now is excellent.

Dayton, Ohio.

FIREWEED FOR SURE

By Ed. Trimble

Will you please tell Spinster Jane, for me, that when "Boy" observes his bees returning to their hives looking as though someone had lightly dusted them with a fairly coarse white powder, he had better check up on the nearest patch of that exquisite plant—fireweed. For, I say, that is one almost sure way to know when they are gathering that nectar which will make honey of about the mildest flavor and the lightest color of any. And in our vicinity this plant seems to be a July bloomer.

I don't quite think that the "weed" part of its name describes it properly, for this plant surely gives no trouble in cultivated areas, and does not seem to be in any way anything but a boon to the beekeeper and a beauty to behold.

Six years ago was the last time that any amount of this tall, showy, but somewhat tender plant favored us by growing, in any appreciable acreage, near any of our bee locations.

One morning in mid-July of that year, I arose early to gather Juneberries. I noted that there was frost in the low spots. Our weather had been dry and clear, and we had been experiencing hot days and cool nights. But this night had been COLD, and the day bid fair to be clear, so we would have that condition which we had often read was most conducive to an intense honey flow. On the way to the Juneberry patch, I expectantly examined some sweet clover plants, and found a condition which I have never observed since—one could SEE the droplets of nectar in the florets, and one could actually taste the sweetness when he put a racime in his mouth. I hurried on, and gathered the days' supply of Juneberries (they're a splendid raw dessert), and beat it home. It was about nine o'clock before it warmed up enough for the bees to start, but soon the whole yard was busy and there was that sound which I have heard old-time beemen refer to as "groaning". I have never seen bees drop in so loaded or miss their own front door so far!

So I hied myself to the sweet clover field and found—not one bee! I went to the alsike, and, though I

couldn't expect anything, I went to look at the alfalfa, but still no bees! As a last resort, I took a look at a little wild patch of perhaps four acres of fireweed, and found it literally crawling with apparently all the worker bees from our nearby yard of about 90 colonies. I could not taste nor see the nectar in its flowers, as I had been able to in the sweet clover earlier in the morning. However, I have always wished that I had looked at it before that multitude of bees dried it out. Of course, the bees turned to the clovers later in the day, and on succeeding days they worked on both the fireweed and the clovers, but I have never had an experience like that since. And here is one guy who would be glad to welcome FIREWEED BY THE ACRE!

Warroad, Minnesota.

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ANOTHER METHOD OF REARING QUEENS AND REQUEENING

By J. K. Stuart

We have been using a method of rearing queens and requeening similar to the one you describe in the January, 1944, issue, for several years and would not attempt to requeen without it. I think we have a simplified method at least for this section. Will pass it on for what it is worth.

We use the regular extracting super with eight combs, and a screen wire frame similar to the moving screen, with a back entrance. The extracting super has to go out on the bees for the coming season anyway. It is there on the hive to be used later on for honey storage. In other words, we figure to be through with it as a requeener before the main flow is on. Not always, as some ride over for fall requeening.

This operation is started as early as is possible to make increase and get queens. We make a two frame nuclei with plenty of young bees. The old bees of course go back home, and this is an ideal condition for introducing shipped-in queens. We place these requeeners over our weak hives. We try to have about 10 of these in a yard of about 50. They are there ready to use on our regular rounds. The heat from the lower hive gives the young queen a good start. We pay very little attention to weak and poor queens early, as we have these young queens coming on and will put them together with newspaper and the paper serves as a marker at a glance for the next time around.

As we use up the first queen, we put back on the same location more brood and cells. We set the whole super on the hive to be requeened and start a new super and set of comb on the old location to pick up the field bees. Some of these requeeners ride along until they have 7 to 8 frames of brood. At this time the honey flow is on and they are in the way. We just pull the screen and let the queens together, going on the theory that the young queen will take over. This method will really step up honey production. In other words, it is not necessary to have non-producing hives.

I like the super method better than the divided hive body; there is more room for the nuclei and also the super method works right in with the season's manipulation of equipment.

Jerome, Idaho.

[It would seem that Mr. Stuart's method has some advantages over the method described in the January Gleanings.—Editor.]

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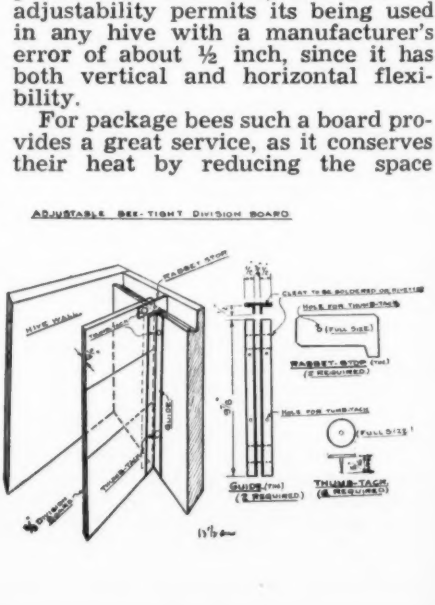
AN ADJUSTABLE BEE-TIGHT DIVISION BOARD

By H. W. Birch

A bee-tight division board that can be quickly installed at any position in a hive, and as quickly removed adds to the usefulness of that hive. This division board fills these requirements. It not only can be set at any position in the hive, but also its adjustability permits its being used in any hive with a manufacturer's error of about ½ inch, since it has both vertical and horizontal flexibility.

For package bees such a board provides a great service, as it conserves their heat by reducing the space



occupied by them, and then as the cluster increases in size, it can be moved to give more room.

In making nuclei it would also be helpful by dividing the hive body into bee-tight compartments.

And for segregating a spare queen at the side of the hive, and such other like uses, it would aid the beekeeper.

It is very simple to construct and costs little. If tin is hard to get, the small amount required for its construction could be got from an old honey pail or a tomato can, as it needs only four pieces 1 inch wide by 10 inches long bent as shown on the sketch, for the guides, (two for each guide) and four pieces 1½ inch wide by 2 inches long for the cleats and rabbet stops. Four thumb tacks will suffice to hold the two guides firmly in place, but be sure that the grip of the pin is at least ½ inch.

An aid to quicker handling is a piece of brown sticky paper which, after the thumb tack is in place, is stuck over the head to hold it there.

Montreal, Quebec.

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KEEPING BEES IN THE CITY

By I. Isaksen

There are several points which one must consider if he plans to keep bees in his back yard. First, it is necessary that you are on friendly terms with your neighbors. If your neighbors put out big washings every week, it would be unwise to start with bees. In March and April when bees come out of their winter quarters, they will spot the clothes on the line and hot water will be needed to remove the spots.

I had bees in my back yard for twenty years, and had yearly from 1000 to 1200 pounds of honey. I had good neighbors for many years and gave them many five-pound jars of honey. However, I finally drew a trouble maker for a new neighbor. One warm summer day, she turned the water hose on the bees and they drove her into her house. So I took my bees away.

I know of a fireman living in the city, who went out to the country and bought two colonies of black bees. The summer came and his neighbor was stung on his face. The neighbor made a complaint and hired an attorney, and sued the beekeeper for $50.00. The beekeeper was unable to hire an attorney because as one of them said, "I don't know anything about bees and could not defend your case." The beekeeper came to me for advice and explained to me that the neighbor who had been stung had a swollen face and suffered pains for many days. I knew that a bee sting causes only a slight discomfort which generally is over with the next day, while a wasp sting is very dangerous. I told him to go back to his attorney with this information. When the affair was brought up in court, the judge listened to both parties and then dropped the case.

Minneapolis, Minn.

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ONE MAN'S OPINION

I've still got swarming on my mind.

In case you get the idea that I don't think about it any more, that's wrong. I still think about it, but I don't worry about it. There is a difference.

In last month's contribution, I sort of spoofed about going to a lot of trouble without getting any real benefits. That is not exactly the right thought that I intended to get over. All of the things that the books say about swarming are right, in their proper places. What I mean is that all of them seldom happen in all the hives all of the time. Worrying about all of them is likely to mean that you are going to fuss with the bees so much that they will get disgusted and walk out on you. Maybe that is one of the prime causes of swarming for the beginners.

We cannot get a bee'seye view of these things. We do not know what she is thinking, if, as, and when she thinks. But we can get a general idea from the way she acts. Observing what is going on and interpreting what you see **correctly,** is how you do it. Misinterpretation of what you see is the basic cause of most of the errors in beekeeping. Ordinary common sense is the prescription for the cure of that malady. The ordinary is far more common than the unusual, although sometimes I wonder why everything has to happen to me. But why get all lathered up over the exception when the chances are that the basic fact is common.

To the beginner, everything is so confused. He will read all about ventilation, and then spend half of the summer worrying about the best way to ventilate his hives. If his site is half way right to begin with,

there probably will be only one or two days during the entire season when ventilation will be a problem. And those few days will be over before he realizes it.

Maybe I am sticking my neck out now, but I don't think so much about that old queen bugaboo either. The bees have a way of taking care of that. True enough, if they supersede during swarming time you might get a swarm with the virgin, but my experience has been that supersedure takes place only when it is needed, and that happens during swarming time only once in a while.

Then there is the question of congestion. Why worry about that. By using common sense again, the trick is to get your supers on in time and make them up so as to attract the bees away from the broodnest. Don't just slap on a box full of frames and foundation and go away with a holy feeling that "you seen your duty and you done it". Coax the bees up into it with some foundation, some half drawn comb and some old comb. You then have a hash that fits everybody's taste.

After reading over what I have written above, I am still not satisfied. Again it looks as though I believe in just giving the bees a lot of room and then trusting to luck. That's not so. I do mean that a knowledge of your bees, your location, your equipment and a repression of the "do something" mania is about the best way to keep bees.

But you are human like all the rest of us, and it has to happen to you before you will believe it. So go ahead and learn your beekeeping the hard way. I did, and I don't regret it in the least. I have made every possible mistake so far known, and have even invented some that were unknown.

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A STINGING EXPERIENCE IN CUBA

By Irwin D. Arter

I want to tell you my experience and how I acquired the bees I have. I had a Ford truck and as I had little use for it, decided to dispose of it. I could not find a buyer for cash but found a man who would take it for 75 colonies of bees with supers, also 30 empty supers. They were some 100 miles away and one day in April I went along with the owner in a truck to accept them if I liked them and bring them home in the same truck.

The man who had been taking care of the bees was very exact about preparing them, screened the entrances and tops. At 12 o'clock we left, loaded with the bees. We got along very nicely until about 10 miles from my home the driver all of a sudden fell asleep and ran the truck off the highway. Well, you can imagine what happened. The cab was caved in and immediately the bees entered. Luckily we were able to get out and away. The driver "beat it" for the field where there was grass and the owner who had not taken his veil off pulled it down over his face and put his hands in his pockets. I tried to run away and when I passed the owner he said there must have been a million bees after me. I rammed my head into clumps of grass and kept going. I got close to a farm house where the owner had been plowing close by with a team of bulls. The bees stung them and they ran away knocking down banana plants with the plow. When I was arriving at the house a dog came to bark at me but the bees stung him and he left. Next I met a hog and he began to squeel and run. A child came out and he began to cry. The old lady came out and they stung her. The owner had the forethought to set fire to some rubbish back of the house and called me to come where the smoke drove the bees away. I was invited into the house and when I sat down things began to disappear. I fainted and fell to the floor. They picked me up and sent me to the nearest clinic where they gave me three injections. My blood pressure was 100 and should have been 135. I improved quickly and was there only two days.

And that was my first experience with bees, which is now laughable but when it was happening it was quite serious.

Omaja, Cuba.

[Moral— Don't fall asleep when driving a truck load of bees.—Editor.]

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GRASS IN FRONT OF HIVES

By J. H. Sturdevant

Grass growing in front of the hives is easily controlled by the use of the heavy paper now used as shipping cases. Such cases flattened out on the ground and with a little dirt thrown on the corners to hold it in place will last all the year through.

St. Paul, Nebr.

SECOND GLANCES

By C. M. Isaacson

Labor saving methods are always desirable, and all the more so in these present times. Editor Deyell is right in saying that all unnecessary manipulations should be dispensed with (page 185). (But couldn't we have, say, one hive to "play" with, Mr. Deyell?). Top supering, supering ahead of actual need, Demareeing—all are of definite value in lightening work. Of course, conditions may make results vary; for instance, a very heavy flow opening suddenly sometimes causes even strong colonies to plug the brood chambers (especially Caucasian bees) and refuse to go up. Likewise, top supering does usually mean better filled supers, but some strains of Italians will enter and work a little in every super, regardless of where placed. The food chamber is perhaps the greatest labor saver of all, and in some localities, three stories may work well. And keep that one sentence before you at all times—"plan your work, then work your plan".

Increased beeswax production is definitely needed. The results reported by Mr. Jamieson show definitely that the use of only eight combs to the super does increase the wax surplus. And as it is also shown that honey production is not affected —that the work of extracting is actually speeded—the method should be given wide use (page 188).

Migratory beekeeping is common in some localities but Mr. Lieb's system of platform apiaries seems rather unique (page 190). To save bees, save labor and inconvenience, and speed up the whole task generally, certainly is worthwhile.

Nine pounds of wax per colony, not to mention a 240-pound average of honey, assuredly is a record that would be welcome in these times (page 193). Harry Beaver gives us a pertinent article of his interesting Cuban experiences.

The drone is a honey producer—a seeming paradox that has been often pointed out. Altho the article on page 194 may be somewhat technical, it is a comprehensive review of factors that research workers must take account of in their attempts to breed a better bee effectively. But based on orthodox theories of honeybee heredity as it is, it may need revision if, as many are now suggesting, the drone is not always a product of parthenogenesis. As stated, there is need for trained investigators to deal with such a problem.

Nosema disease is receiving more and more attention as it becomes more damaging (page 198). That the crops from entire apiaries may be lost should amply prove that the matter merits serious and prompt attention. Mr. Gardner calls it "Enemy number one". His words are of value in calling attention to the need for immediate work. Did the presence of yellow sweet clover in all three of the cases he reports have any significance? This and other factors should be checked carefully.

Small things grow large if repeated often enough. That is why, as Mrs. Nielsen points out (page 202), that even if some recipes seem to call for only a small amount of honey, if enough people use them the aggregate will be big. And these May recipes look appetizing! Let's spread them.

Increasing a small apiary is often quite a problem for the beginner. C. O. A. Kramer tells in a few words of his simple and practical plan. His method for introducing queens should be a valuable hint to many an amateur—and perhaps others as well (page 204).

Lavish use of winter stores may be an asset in some cases, as the item on page 206 suggests, but I would say that this trait and strong colonies in the spring do not always go hand in hand. I have seen many colonies boiling with bees and very little of their stores used up in comparison. Such a characteristic would be preferable to encourage, a true conservation.

Reversing for swarm control is an old and much argued practice but One Man's Opinion adds a new point —furnishing foundation for the wax workers to expend their energy on. It sounds worth a trial (page 206).

Drifting is a problem at times and **too** orderly spacing of hives may aggravate it. I use the "two and two" arrangement—it has many advantages—but always try to space the pairs irregularly (page 218).

Build now for after the war. That is sound advice, even if much repeated. Let's support the American Honey Institute now—for the honey-conscious public we will need badly later. Every dollar will help.

Middle River, Minnesota.

From North, East, West and South

SOUTHERN CALIFORNIA, May 3

Weather: Throughout April the weather continued too cool for the best nectar conditions. While we had a few balmy days you could hardly call them warm. Many days were cool to almost cold with a few nights getting near the frost line. Then the night of the 26th it began to rain and continued well through the 27th. This was accompanied by some of the regular old eastern thunderclaps and lightening flashes which struck wires and a building in a nearby city. An average of about one inch of rain fell over most of the beekeeping territory of Southern California making about 15 inches in most sections.

Honey Crop: That the rain has helped the prospects for a honey crop in Southern California there is little doubt. That the orange and sage are from a week to ten days late, I think most beekeepers will agree. Orange trees have been blooming very lightly and most colonies in our section have stored little more than they have consumed. We were about to let it go at that when in drops a beekeeper from another section nearer the coast who says that the bees have done remarkably well and it looks like sixty or seventy pounds. Your guess is as good as mine and let us say from twenty to sixty pounds and let it go at that until the honey is in the cans. Some grove owners say the bloom is only half opened up on the orange so here is hoping.

This last and most favorable report comes from one of our largest Valencia orange districts. We usually look for the best honey yields from the navel orange districts but this season with its long cool period of weather during the blooming period may prove different.

Miscellaneous: That the moving of bees to the orange groves this year has reached a record in numbers, few who have been in the game for years will doubt. Some beekeepers contend that the orange districts cannot be overstocked. That the bloom on the trees is only a small per cent in numbers as compared to the usual season seems to be the opinion of beekeeper and orchardist alike. Will there be the usual amount of nectar? Well, we can only wait and see.

Some apiaries are changing owners even after being moved to the orange. Help is almost impossible to get. Sons in the army, Father not able to care for the bees, and so the world goes on.

Sages have not made the growth we would have expected from the amount of early rain we had but this last inch may start things. A buyer for one of the largest packers of honey dropped in for a chat a day or two ago and was very anxious to contract for 1944 honey. That the sage and orange honey will bring ceiling prices, there is little doubt.

Since starting these notes the weather has turned decidedly warmer and honey prospects for the balance of the orange blooming period is much better.

While these letters come from Southern California they apply more particularly to the great sage, wild buckwheat, and orange producing parts of the southland. The great Palo Verde Valley in Riverside County and the Imperial Valley in Imperial County are in Southern California and are consistent in the production of good crops of honey most of which are produced from alfalfa.
—L. L. Andrews, Corona, Calif.

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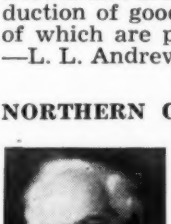
NORTHERN CALIFORNIA, May 3



Weather: If we fail in producing a good crop of honey in '44 it will have to be for some other reason than weather. All during April the most encouraging reports kept coming and the first days of May have been perfect. It is a fact we are short on rainfall but all through the season in every other way it has come to suit the most exacting beekeeper. Then when we had good reason to believe our long dry summer had commenced we had some of the finest showers the last

week of April. Our best students of weather tell us that a thorough soaking of the ground at this time is most encouraging for a good crop of honey.

Here in the Bay Region we are still below the normal rainfall but we are past our worrying time for our 1944 crop is in the hive or in the can. When we saw our eucalyptus trees so badly damaged by the wind storm in the early winter we could not expect a crop. So again our surprise is in our favor.

Condition of Bees: The past winter has been so nearly perfect for bees in all of our territory that we have every reason to look for a good crop of honey and beeswax in 1944. Here in our large cities where anyone can take a notion to keep bees and proceed on the "Let-alone system" we hear of too much swarming. We also hear complaints from people who want to start in beekeeping by buying package bees that dealers are short and cannot furnish them. There is a shortage of package bees to fill the orders of commercial honey producers who would gladly put these wandering swarms to a busy life.

Miscellaneous: We are approaching the season for moving bees and the interest is not the same. The old line of moving bees is broken. The shortage of gasoline, tires, and help may cut quite a figure in causing beekeepers to seek permanent locations. This is a new idea in California and will produce many changes. No season of the past has produced so many changes and we believe they are all for the good of the beekeeping industry. Never before have we held so many meetings and never before have they been so well attended by men and women so determined to bring beekeeping to the front. The demand for bee literature, books, and bee journals has been most encouraging.

It is a great pleasure to announce the formation of the Orange Empire Honey Producers' Cooperative Association. It is now fully incorporated with W. L. Bell, a leading beekeeper of Orange, California, as manager, offices at 512 West Chapman Avenue. Interest in similar cooperatives is being shown by producers in different sections of the state and there is still time for such organizations to be found to handle this season's honey crop.—Cary W. Hartman, Oakland, California.

TEXAS, May 2

Weather: Never in the history of Texas beekeeping has early spring promised so much and midspring given so little. February and March were all that could be desired. All the spring honey plants were ready to do their best and then March 30th with a killing frost—a premature April joke that lasted a whole month. April as a whole was cold and dry and the bees with the best field force in years idle and using the remnants of food. May has done well. May day is not suitable to May Day dances, but the rain long overdue puts new hope for a full crop in 1944.

Miscellaneous: Radio and newspaper appeal for more beekeepers is getting public attention. Dozens of people who know nothing about a honeybee and who think all one has to have to begin with is a beebox and a queen bee are going through the school of hard knocks. Some are coming out successfully. Whether successful or not it shows the people are ready to help win the war in every way possible.

The two great controlling factors in honey plant growth are moisture and temperature. If either fails some plants get by, but when both fail even the most rugged lose out. Mexican persimmon was in full bloom when the freeze came. This gave some new nectar, but guayocan, mesquite, and catsclaw all ready to go, were of no avail. Mesquite is showing new tags. Stunted Horsemint is fast recovering. Gaillardia and a dozen other composites are coming into bloom, so a honey crop may yet be gathered.

This newly aroused interest in beekeeping is offering a calling for technical help. In every large city there are many who keep a few bees for amusement and others who would if they had a little help. In these towns some few beekeepers could make wages as practitioners of beework and make reasonable charges for services.

A visit to a number of department and five and ten stores in any large city is a revelation to any one interested in honey. They carry high priced gorgeously packed brands

that are said to come from the Tropics. The honey is the legal price but it is the package that costs. In the five and ten stores some local honey is offered at regular prices, but what sells is the tropical honey in two-ounce bottles and which is to be used as a medicine. The names given to this tropical product, are Hibiscus and Phoebe Fortuna. However, if you wish the real thing go to your grocer. He has numerous good United States beekeepers' honey at the regular price.—H. B. Parks, San Antonio, Texas.

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MAINE, May 7

Weather: The winter over much of Maine was characterized by few extremes of temperature. The snow came early and remained on the ground from November to the middle of April. Although there were many days with zero temperatures, there was no extreme cold.

Until the last of April the spring was cold and backward. However, during the last 10 days, the State has had almost ideal weather—warm days with bright sunshine.

Bees: The fairly steady even temperatures of the winter seem to have resulted in good wintering of bees. Few losses have occurred and those mostly from starvation.

During the recent period of warm weather bees have responded with rapidly expanding brood nests. Since the change in the weather field bees have been gathering pollen and nectar from minor sources for 10 to 12 hours a day.

Prospects: The continuous snow cover of the winter gave ample protection to the clovers. Moisture conditions are ample for early May. At present all signs indicate that a favorable year is ahead.

Miscellaneous: Practically all honey is gone from producers. Most beekeepers could easily have sold two or three times the honey they had on hand last fall.

Plans are in the making for a regional conference and meeting of the beekeepers associations of the various New England states for August or early September. Place of meeting likely will be in New Hampshire.—C. O. Dirks, Orono, Maine.

MINNESOTA, May 9

Weather: Reports from many parts of the state indicate that winter loss, while not excessive, is considerably heavier than had been anticipated. An extended period of unusually high temperatures in January gave many opportunities for flight and up to that time wintering conditions had been unusually favorable. Considerable brood rearing started in midwinter. March, however, was very hard on outdoor-wintered bees, and the season during April and May has been from two to three weeks late with heavy rains over the central and southern parts of the state. Farmers have been unable to get their seeding done at the usual time and many have had to make rather drastic changes in their crop plans. The northern part of the state had lighter rainfall and the seeding is well ahead of schedule there.

The combination of warm winter and very late spring is causing heavy consumption of stores with some loss from starvation. Much feeding is being done. Package bees have been coming through in much better condition than usual judging from all reports. From two to three carloads of package bees per day have passed through the St. Paul Express Office from the latter part of April to the present time (beginning of the second week in May). The cool weather has no doubt helped in bringing the packages through in such good condition. Many were received during a snowstorm the first week of May.

Honey Plants: Honey plants are in excellent condition, although there is a shortage of sweet clover and other legumes, due to a number of factors. The sweet clover weevil has done some damage and this, together with recent unfavorable seasons and the fact that grain prices are so high, has resulted in a much smaller acreage of sweet clover. Dandelions are just beginning to show in the latitude of St. Paul, another indication of the lateness of the season.

Miscellaneous: There is a greatly increased interest in beekeeping, due to a combination of many causes. Of course the present prices for honey and the shortage of sugar is one

factor which is influencing many to want to keep bees, and many others see in the keeping of bees a chance to make an additional contribution to the war effort. For many beginners the interest will be only temporary but from these new recruits to the industry will come a certain number who will form a permanent addition to the beekeeping fraternity.

Our combination of correspondence course and short course in beekeeping has created an interest far beyond our expectations. So far we have had 89 students from 27 different states, and the student body ranges in age from 16 to 78, and represents 42 different occupations besides beekeeping. This brings out the fact that beekeepers represent a good cross-section of the population of the country.

Advance inquiries indicate that the Beekeeping Short Course at the University of Minnesota, May 11-13, will be well attended. Mr. James I. Hambleton, Senior Apiculturist, U. S. Department of Agriculture, Washington, D. C. and Mr. L. T. Floyd, Provincial Apiarist of Manitoba will be guest speakers.—M. C. Tanquary, St. Paul, Minn.

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SOUTHWESTERN IDAHO, May 1

Weather: Our past winter was mild and dry. Bees came through the winter in excellent condition, with hardly any winter loss. March brought cold dry winds and it looked like we might have a water shortage but the 1st of April brought us real April showers. The rainfall for April was above normal, and while it rains here in the valleys it snows in the higher elevations which we depend on for irrigation water. The Arrowroch reservoir has just reached its capacity, and we should have ample water for more prompt irrigation.

Bees and Blossoms: Even though we had cold weather during March the bees are in excellent condition and most producers are able to make considerable increase. Quite a number of package bees are being installed but not as many packages are needed to make up losses as was expected. Our first maples started to bloom the first week in March, apricots about April 5th, cherries about the 15th, followed by peaches and pears, and the apple trees are just starting to bloom. The dandelion began about the 20th of April and at this time is at its peak. The prospects for a crop looks promising at this time even though everything is late. If it should turn warm things would soon catch up with the normal season. Most every producer is hitting on high and putting in plenty of overtime. I believe we can depend on every producer to do his part in winning the war, which we must do.—A. D. Wood, Meridian, Idaho.

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OHIO, May 9

Weather: Winter seems to have a desire to show spring how to "keep cool". We had an all-day rain on May 5th followed by very cool, cloudy weather and at this writing there is no indication of improvement. Frost has been reported in various parts of the state. In this section of the state the dandelions are at their best for nectar and pollen with the weather too cool for the bees to do active work. Red-bud is also at its best.

On January 27, 1944, one of our local papers came out with these head lines—"Water supply shows effect of dry spell." Heavy rains needed to refill reservoirs now below normal. All historical data available at the Columbus Weather Bureau fails to disclose another winter in which water table was so low—with wells and streams dry, according to the weatherman.

Fortunately this has all been corrected since January as we are now caught up with our annual rain fall with a slight surplus.

Condition of Bees and Clovers: The bees went into winter with ample food but were scarce of pollen in some sections. There was a great deal of supersedure last fall. Some supersedures were a little late, resulting in sterile queens. From the information I can gather the winter loss in Ohio from all sources to May first will be from 18 to 20%. A cold spell in early April retarded brood rearing. Bees are only medium strong.

Miscellaneous: All beekeepers in Ohio have noticed the gradual disappearance of clovers for bee pastures. Here are some figures taken from the Seed Trade Journal, compiled by the

Bureau of Agricultural Economics. USDA., which should cause the beekeepers to wonder what the present and near future holds for them.

OHIO

Name of Clover	Av. Acres 1932-41	Acres 1943	Av. Pro. Bu. 1932-41	Pro. Bu. 1943
Alfalfa	18,800	2,000	19,600	1,400
Alsike	42,700	10,600	61,300	9,500
Sweets	10,900	3,600	23,180	5,400

This shows a decrease in acres of 56,200 and in bushels of seed of 87,780. The way clovers are being ploughed under this spring the acres and bushels of seed will show another big decrease in 1944 and 1945. Where is our nectar to come from in the years to come?—W. A. Coulter, Columbus, Ohio.

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ONTARIO, May 5

Wether: The unusually cold weather for March as mentioned in our last report continued until the 28th of April. Only twice in April before that date, was any pollen brought in by the bees, and then summer came to us in a rush. How long this warm weather will continue is a question yet to be answered. This is May 5th, and for the past six days we have had close to 70 degrees daily.

Condition of Bees: Bees in general are in fair shape so far as we can learn, but many report colonies short of stores and some beekeepers lost some by starvation before being aware of the food shortage. Our own bees are populous, as a rule, and some colonies have been clustering out. All are in winter cases yet. As to stores, we have fed less than one pound per colony to our 1300 so far, but if the weather turns cool and wet during willow and dandelion bloom, we may have to raise that amount in rather a big way, as with great quantities of brood in all stages and a host of young bees, a limited amount of honey in the hives soon disappears.

Package Bees: As intimated in our last report, all package bees coming into Canada can claim a subsidy of 50 cents per pound if the importer fills out proper forms and forwards the same to the office at Ottawa. While not enthusiastic over subsidies in general, needless to say, we will send in our claim for the amount we are entitled to, as we all have to help pay when subsidies are liquidated. Package bees have been coming in to our station at Markham in larger volume than usual as local beekeepers had placed their order quite a long while ago and so were able to get the bees. More damage than usual and in one shipment we received, the thin board covering the syrup can had been pried off in some way and the food can had come out. The express car was surely "buzzing" when the train pulled in to Markham. Now these covers over the tins are nailed on tight, and how they ever got pried off is a mystery. Another beekeeper had one package with only the queen suspended in the cage with about a handful of bees clustered around her. The package itself was not damaged much but the bees were all gone. Where were they, we wonder? Inexperienced help and a general shortage of helpers is the plea advanced by the Express Company.

Miscellaneous: The 20 colonies wintered a year ago in two-story ten-frame L. hives, with no packing except a wrapping of black paper, were wintered again in the same manner. An upper entrance made by a ⅝ inch augur hole and a very small opening at the bottom, were given the same as a year ago. All 20 have wintered in about the same condition as the other bees in the yard, in the regular winter cases. Consumption of stores was somewhat heavier than with those in winter cases. But our boys are not enthusiastic over this way of wintering as they dislike the "papering" job each fall.

Our packing cases cost us, on the average, twenty years or more ago, about $2.00 each, less than 10 cents each per year. Paper costs about the same when paper is doubled, and the boys say that they can place at least two hives in regular cases while they are papering one. All a matter of individual preference, I presume.

Regarding the matter of using 8 frames in a ten-frame super when producing extracted honey, one difficulty we have encountered that keeps us from using the plan very much, is that many colonies will build brace combs between these widely spaced combs, and sometimes build another thin comb between them. This makes a mussy job when removing honey and we much prefer the nine combs to the super.—J. L. Byer, Markham, Ontario.

SIFTINGS–from various sources

By the Editors

Realizing that all worthwhile information on beekeeping is not found in one bee journal, we are sharing with our readers some notes gleaned from other bee journals, back issues of Gleanings, and bee books.

"I wholly disapprove of what you say but will defend to the death your right to say it".—Voltaire.

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When bees are really getting surplus honey they will store it in a super or supers above an inner cover with the center block removed. This does not mean that the inner cover should be left below the supers.—M. J. D.

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"Flying insects live rapidly and their metabolism is excessive. If to this is added the fact that bees consume chiefly sugars in honey, there is apparently adequate explanation of the short term of life. They are creatures not of a day but of a few weeks and they well serve as examples of industry in that they die in a vain attempt to supply the colony with one more load of nectar."—Dr. E. F. Phillips, from his book "Beekeeping".

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The late Dr. C. C. Miller said, "For best success get pure stock, keep tab on every pound of honey taken from each colony and breed from storers that are all right in color and temper."

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"Because some 50 American crops are either materially enlarged or entirely dependent on fertilization by pollen brought by honeybees, the value of these insects to agriculture is probably more than 20 times the value of the honey they produce."—By Freling Foster in Colliers for Mar. 25, 1944.

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"That bees send out scouts to seek a suitable abode, can admit of no serious question. Swarms have been traced to their new home, either in their flight directly from the hive, or from the place where they have clustered; and it is evident that in such instances they have pursued the most direct course. Now this precision of flight to such a 'terra incognita' as an unknown home would plainly be impossible, if some of their numbers had not previously selected the spot, so as to be competent to act as guides to the rest. Whether the bees send out their scouts before or after swarming may admit of more question. In cases where the colony flies without alighting to its new home they are unquestionably dispatched before swarming."—L. L. Langstroth.

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"The basic problem is not how or where bees are wintered but what kind of colonies are wintered."—C. L. Farrar.

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So work the honeybees—
Creatures that, by a rule in nature teach
The art of order to a peopled kingdom.

—Shakespeare

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"T. Lumsden (Scottish Beekeeper, December) brought his bees back from the heather, where they had been for several weeks, and decided to change the position in the apiary, of one of the hives, believing that all the field bees that knew the old site would have died at the moors. The workers behaved according to plan, but the drones at once returned to the old site. The author adds: 'I had forgotten that the drones live throughout the summer.' (Was this the reason. Or has the drone a better memory—or more probably, less ability to learn new lessons, than the worker bee?)"—"Bee World," for February, 1944.

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The following on construction of worker cells is from **Huber's "Observations on Bees"**:

"The cells of bees are not simple hexagon tubes, these tubes have a pyramidal base, formed of 3 pieces in losanges, or 3 rhombs, and it is these that form the foundation of the cells: on two outside faces of this rhomb they erect two of the walls of the cell; then they shape a second rhomb which they fasten to the first, giving them the proper shape; on those exterior walls they erect two new walls of the hexagon; lastly they build the third rhomb and the

(Continued on page 300)

American Honey Institute News Notes

Many brides of these days are at home with their parents while their husbands have gone back to duty. The day is not far off, we trust, when these young people will be able to establish their own homes. In the meantime, the young brides are learning to cook. With an eye to business, have you a list of the young married people in your community? Have you presented them with a copy of "Old Favorite Honey Recipes?" If not, just send the **American Honey Institute,** Madison 3, Wisconsin, a list of the names with addresses and a set of leaflets will be sent free of charge.

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A set of honey recipes is sent free to every one who requests them. The **Institute** would like to see the suggestion to write the **American Honey Institute,** Madison 3, Wisconsin, for a set of recipes on every package of honey that is put on the market.

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The **Institute** has received from the the University of Wyoming at Laramie a series of recipes for jellies and marmalades in which honey has been used. The end point temperatures are developed to assure a good product. Miss Emma J. Thiessen was in charge of the research. These recipes may be had by writing to the **American Honey Institute,** Madison 3, Wisconsin.

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From the Director of Home Service Department of the Power and Light Company, Dayton, Ohio, recently came the following letter: "Recently one of our customers requested recipes made with honey, or part honey, and in a moment of weakness I let her have my 'Old Favorite Honey Recipes'. I'll regret this step if unable to replace my copy. Have enjoyed my copy both for use in my home and for ready reference in this office since 1941."

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From Washington: "I have had so much pleasure from 'Old Favorite Honey Recipes'. Would you please send one to each of my friends whose names I am sending?"

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A new bulletin on the nutritional value of honey is about ready to be printed. Members will receive a copy and can then order the pamphlet in quantities at cost. This should be ready for wide distribution by the time schools open in September. Home Economics teachers will be given copies gratis for their classes.

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Do you know that with the next printing of "Old Favorite Honey Recipes" a quarter of a million copies will have been printed?

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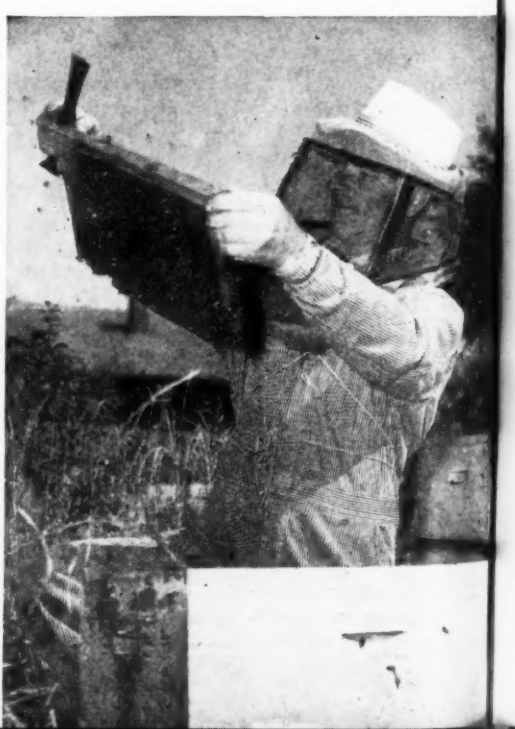
One of the encouraging signs in the marketing of honey is that today stores are carrying many brands of honey. One of the largest department stores of the Middle West carried but one brand of honey until two years ago. Recently twelve brands were to be found on the counters.



Gerald Wentzel, Sheboygan Falls, Wis., state inspector, has been on his job for six years now and finds it just as interesting as ever.—Photo from Ray Tetzlaff, Thiensville, Wis.

Spinster Jane Says

In spite of all its fine promises, this has turned out to be a very late cold spring. Buds and leaves are very slow in unfolding, and several mornings we have noted white frost covering everything. One night frost was so heavy, the men feared trouble because of leaving water in the radiator of the truck.

Years ago, when first we came here as pioneers, John found some wild plum trees growing along the banks of the Spanish River, while out fishing one day, dug up a couple, and planted them in our garden. By cutting out many shoots, trimming and pruning those allowed to grow, our home bee-yard has now over a dozen fine plum trees. For many years they bloomed beautifully, but when the fruit formed it blasted, turned white, bloated to double its size, and finally dropped off. For two successive years, now, these trees have produced and ripened fine plums and I thank our bees for the miracle. I strongly believe to ensure a yearly crop, they should be protected from east winds by a hedge, high fence, or windbreak. We have always blamed east winds for blasting fruit, and east winds often are laden with sulphur fumes from the great chimney of the smelter. This protects growing things near it, but carries the fumes further a-field, and may be the cause of grain-crop failures, and the dying-off of many forest trees. We do find fault with east winds, but, like Mark Twain, don't do anything about it. We might save our plums, at any rate, by providing some sort of shelter from that wind.

Our bees are very busy every fine day, for, though there is little nectar; there is an abundant supply of pollen. Early this spring the sawdust left in our yard after sawing white birch was literally covered with bees. A neighbor, too, rang up to ask if we had lost a swarm of bees. There were thousands of them where he had sawn a pile of maple and birch logs. We see them, too, wherever a twig has been broken on young maples. They, like the wild beast, "seek their food from God", and through old Mother Nature's bounty, seldom are allowed to starve, though man's feeding lightens their labor, and allows them extra food for their babies at home. They teach us a fine lesson by their ceaseless energy, their industry, patience and determination.

And talk about quiet bees; Boy took the hives remaining in the cellar very early, parking them just underneath the verandah, and close to the south wall of the house, and they are still there, unmolested and unmolesting. Only one person has been stung, so far—a boy, swinging his bat and making wild passes at a ball thrown him by another youngster. Bees seem to resent flying arms or any other hurried motions. They, like old folk, desire and enjoy peace and calm serenity, and perhaps only old folk can understand that. Ours will enjoy close proximity to the house for only a few days longer. They are to be moved a couple of miles away, as we don't want them coming back to their old stand to starve and shiver, or to vent their righteous wrath upon us, the authors of all their trouble, the destroyers of their homes.

I am watching our plum trees, and hoping the buds with which they are covered may delay their opening a little longer, for fear frost may blacken and blast them, as it surely will do if they open too soon. They will soon be a dream of beauty, a cloud of snowy bloom, floating and swaying in mid-air, and gloriously alive with the busy and joyous humming of myriads of honeybees.

All over the small rocky hill, beside which our home stands, we have allowed wild cherry trees to run riot. They will soon be in bloom, and after them, the haw trees, not far from the kitchen door, will succeed them in blooming. Some folk like beautiful shrubs, purchased at high prices from dependable nurseries, but why seek beauty a-far when it is all about us? And why strive for an unnatural, artificial beauty, when beautiful things are to be had free, for a little work done? Do we not often seek for something far beyond our grasp, when by opening our eyes we might find something more desirable within our reach? Let me once again repeat that fine old Chinese proverb; "If you have two loaves of bread, sell one, and buy a lily." Yes, beauty is as necessary to a full life as is the bread we eat.

(Continued on page 303)

Editorials

Strong colonies may starve in early June. Populous colonies consume a large amount of stores. In some regions of the North there is practically a dearth of nectar just before the clover honey flow begins. If, added to this condition, a cool rainy spell of weather sets in, commercial beekeepers may spend some sleepless nights—that is, if they are really interested in their bees. Enough said. See to it that every colony is well supplied with stores, in advance of this critical period.

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Metal Covers for Beehives The War Production Board has recently omitted the paragraph preventing in the past the use of steel in beehives other than nails, frame supports, and wire. This will allow metal to again be used for covers.

Despite the action on the part of the War Production Board in removing this limitation the supply manufacturers report considerable difficulty in placing purchase orders for quick delivery of galvanized iron suitable for use on beehive covers. The purpose of the WPB announcement is to permit supply manufacturers to be ready to care for the new season's requirements with the steel hive covers. It is doubtful if many metal covered hives will be on the market for another three months at the least.

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Sugar Tax Refund Again we would remind beekeepers that when sugar is bought to feed bees the price includes a tax in the amount of 53½c per hundred pounds. A refund of this tax can be secured through your nearest Internal Revenue Collector. Form 834 is the proper application blank and will be furnished by the Internal Revenue office.

In filling in the application no claim should be made for sugar purchased over a year previous to the date of the application. In addition to filling in the application form, have your grocer, wholesale grocer, or whoever you purchased the sugar from, give you a certified copy of his invoice on which is stated the name and address of the manufacturer, the date the sugar was manufactured, polariscopic tests thereof, and the amount of tax paid.

A statement must also be furnished showing the date and amount of sugar purchased, that the sugar was used in feeding bees, and the dates used, together with the amounts. If all these forms are properly signed and certified and mailed to your nearest Internal Revenue Collector a refund will be received in due time. To bolster up any skeptics as to the possibility of securing the refund, we might say that our Company only last week received a check for sugar that was fed to our own colonies of bees during the year of 1943.

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A. I. Root on Contaminated Wax in 1876 A. I. Root's original description of the way in which the bees make wax, which appeared in the August number of Gleanings for the year 1876, is not only beautiful but strictly accurate. It has appeared in every edition of the ABC of Bee Culture, and has been widely copied elsewhere besides. It bears repeating here:

> Watch the bees closely during the height of the honey harvest, or better, feed a colony heavily on sugar syrup for about three days during warm weather. At the end of the second or third day, by looking closely you will see little pearly discs of wax resembling fish scales protruding from between the rings on the underside of the body of the bee. If you examine these with a microscope, you will find them of rare beauty.

There follows a no less accurate observation that seems to have been overlooked. In view of the vast amount of experimenting and discussion in the nearly 70 years that have elapsed, this observation was almost prophetic.

> When yellow wax is exposed to the sun and moisture in thin ribbons, it gradually loses its yellow color and becomes white. Its melting point is also raised by this change about 12 degrees. If given to the bees during the hot weather and raised up into cells it has the most beautiful appearance of snowy whiteness. This, however, is soon soiled and colored if left in the hive, for neat as the bees are said to be, they have a habit of running over the clean, white comb with muddy, at least, dirty feet. On old, dark combs, this would be unnoticed, but on comb from bleached foundation, it becomes very apparent.

It is interesting that A. I. Root, 70 years ago, saw that the color and lower melting point of dark wax are due mainly to propolis which is tracked

about in the hive and contaminates white combs from millions of propolis-sticky feet.

There is a difference in melting points of capping wax and propolis contaminated wax rendered from old combs, but especially when capping wax is fresh, the difference is not apt to be over two or three degrees F. At first reading, the difference of 12 degrees Fahrenheit between yellow wax containing propolis and bleached beeswax might seem like an exaggeration, and yet, if shredded wax, or wax in ribbons, is exposed to damp air and sunlight long enough, it reaches a very hard stage, and this is doubtless what A. I. Root had reference to.

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The New Doctrine of Pollen Substitutes or Supplements Tested on a Big Scale. The reader's attention is especially directed to the article in this issue on page 249, by John W. Holzberlein, Jr., former president of the American Honey Producers' League. He is one of the extensive honey producers in the West, a careful student of the modern practices advocated by the U. S. Bureau of Entomology, more particularly, by Dr.C.L.Farrar.

The doctrine of pollen supplements or substitutes plus the use of queens selected for their high average in honey production will perhaps bring about a new era of beekeeping. It involves fewer but stronger colonies built up, in spring before the bees can fly, to very high numerical strength, filling completely two and oftimes three story hives. The new doctrine contemplates not only expert management but the use of queens bred from ancestry of high honey production.

The workers in the Bureau of Entomology have been testing colonies headed by queens of low honey percentage along with those of high percentages. The first will yield only 50 pounds of honey, while the latter will average up to 400 pounds.

The writer has seen some of these enormous colonies built on pollen supplements—colonies where package bees can be shaken as early as the first of March, and still produce a crop.

James I. Hambleton deserves not a little credit for organizing his staff to pave the way to higher production, both of package bees and of actual honey and beeswax.

The New Era of Package Bees in the Southland As stated elsewhere, under the general head of Nosema, the Senior Editor spent some time in Madison, Wisc., during which time he asked a thousand questions on pollen supplements. We do not have space here to tell the whole story but the following will appear in the next edition of our ABC & XYZ of Bee Culture.

Soybean flour, expeller processed and mixed with honey or syrup, will raise brood and bees without the addition of any other ingredients. But it will support brood rearing actively for about two weeks when natural pollen may be available. While soybean flour contains actually a higher percentage of protein and less fat than the ordinary grains when ground up, and while it is markedly superior to these other grains, except possibly cotton-seed meal, it needs to be reenforced, with 25% of natural pollen, since the addition of the flour will produce much more brood and bees than the pollen fed alone. There is an impression that it is difficult to get this pollen, but as a matter of fact, Dr. Farrar has proven that it can be secured very easily through the medium of the pollen trap. One colony, with a pollen trap, will furnish enough pollen for 50 other colonies. The author can vouch for that because he has seen the results at Baton Rouge and at Madison, Wisconsin.

Another impression has been more or less current that natural pollen trapped, would not keep, that the bees seal it under hon and that dry pollen would mildew and spoil. The author has seen square cans filled with dry pollen that was gathered in 1941, and which during 1944, was giving excellent results, 75% soybean flour and 25% natural pollen.

Dr. Farrar prefers to call it supplement rather than substitute because it has been found that soybean flour alone will sustain brood rearing much beyond 2 weeks unless the bees have access to some pollen.

The author has spent not a little time up at the U. S. Bee Culture Laboratory at Madison, Wisconsin, in order to see and get the actual proof of how this will build up a colony. The colonies where these pancakes of soybean mix were placed on top of the frames built up very rapidly, so much so that Dr. Farrar was able to shake package bees right from colonies in April for starting nuclei.

The use of this soybean flour and natural pollen mix makes it possible for the bees to begin heavy brood rearing before they can actually fly, and after they do fly it stimulates them all the more if the colonies are located where there is a shortage of pollen in the spring. These pancakes will enable the bees to build up as they will upon the natural pollen.

The following is taken from circular E531:

FEEDING POLLEN AND SOYBEAN FLOUR FORMULA

The formula for making 50 1-pound cakes is as follows: 4 pounds of dry pollen is softened with 2½ cups of water. This moist pollen is added to 30 pounds of thick sugar syrup made by dissolving 20 pounds of sugar in 10 pounds of hot water. Twelve pounds of soybean flour is added to the syrup and pollen mixture and stirred until

uniformly mixed to produce a doughlike paste. The pollen does not soften readi in sugar syrup but breaks up when a little water is added. Where the pollen supply is abundant and the percentage can be increased from 25 to 50 percent, less syrup will be needed; if soybean flour is used alone, more syrup will be required.

There are many grades of soybean flour on the market, many of which have not been tested as a pollen supplement. It is recommended that one be selected having a low fat content (0.5 to 7 percent) and containing approximately 50 percent of protein, refined by the heat-treated expeller process rather than by the chemical-extraction process.

Cakes of about 1 pound should be fed to each overwintered colony beginning March 10 to 20 in regions where the main honey flow begins in June.

Soybean flour made by the expeller process is better than that made by the vent process. The following companies manufacture soybean flour by the expeller process: Spencer Kellogg & Sons, Inc., Decatur, Illinois, Allied Mills, Inc., 3400 Board of Trade Bldg., Chicago 4, Illinois, I. F. Laucks Company, Inc., Portsmouth, Virginia, 314 Maritime Bldg., Seattle, Washington.—From the U. S. Department of Agriculture, Beltsville, Md.

[Soybean flour can also be secured from Killion & Sons, Paris, Illinois.—Ed.]

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A Trap in Every Yard where Pollen is Scarce The heading would imply that possibly such a trap on one hive should be maintained in a 50 colony yard part of the season to gather the necessary pollen to take care of pollen shortages in 49 other colonies later in the season. As referred to elsewhere, the writer has just come from a visit at the U. S. Bee Culture Laboratory, at Madison, Wisconsin. We went into this question of pollen traps very fully with Dr. C. L. Farrar and the proposition of having a pollen trap for every yard of 50 colonies did not seem impossible. The wonder is that bee supply manufacturers have not hitherto seen its importance to list it in their regular catalogs. Nor is it impossible for an unskilled beekeeper to make an outfit that will catch the pollen and allow the bees, as they bring it in, to leave it at their doorstep.

It is rather difficult to show its construction and the principle on which it works by ordinary drawing or engraving. Briefly, it consists of the simple use of a wire cloth, 5 mesh per inch. This cloth is bent into the shape of a letter "U", and is placed before the entrance of a good strong colony in such a way that the bees can't get into it except through two thicknesses of the 5-mesh cloth. When they come to the hive, loaded with pollen on their hind legs, the mesh is close enough to catch the pollen, when it drops down into an oblong box beneath. When the box is full it is emptied and so the process is continued.

Obviously, it would not be wise to leave such an outfit exposed to the weather, so a housing is made of metal or wood that is adapted to fit the entrance of the hives in use. The U-shaped screen is mounted in the upper part of this housing.

We hope to mention in later issues of Gleanings the importance of this trapped pollen, how easy it is to catch it by the bushel, and store in 60-lb. square cans where it will keep for two or three years or until ready for use.

In localities where there is a scarcity of pollen the trap will be a great help.

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Nosema—Will it Do More Damage in the Future than in the Past? Recently we had an extended talk with Dr. C. L. Farrar, H. F. Wilson, and H. J. Rahmlow, of the University of Wisconsin. While the greater part of our discussion related to the question of pollen substitutes and pollen supplements and the possibility of rearing bees before they can fly in the spring in order to get a larger numerical force for the honey crop, we also discussed the question of Nosema. We asked Dr. Farrar if that disease might do more damage in the future than it had in the past. In other words, were its ravages increasing so that the industry would face a heavy loss of bees? Dr. Farrar's answer was emphatically, "No". It was no worse, he said, than it had been in the past but that we were now able to recognize it and therefore we saw more of it. We asked him if Nosema would be worse than AFB. He said the two diseases can not be compared. AFB is a community problem requiring governmental control measures designed to eradicate or prevent it's spread. Nosema may cause serious beekeeping losses but the nature of this disease probably will make it remain a management problem. Then we asked what we should do when we found it. His answer was that the greater numerical strength of the colony the less damage it would do if it were present. To put it another way, good beekeeping will keep down Nosema where poor beekeeping and bad win-

(Continued on page 296)

Talks to Beekeepers

By M. J. Deyell

"Nothing New Under the Sun"

During the winter months, as I find time, I have been delving into beekeeping literature of the past, especially old copies of bee journals and bee books. Those of you who have reviewed most of the beekeeping literature will doubtless conclude that there is practically nothing new under the sun in beekeeping.

As I attend beekeepers' meetings over the country, I am sometimes amused to hear some fellows who have recently made a start in beekeeping claim they have made new discoveries with reference to handling bees or using beekeeping equipment. I have said more than once, "Brother, that idea was used about 50 years ago and if you want to read about it, consult Volume—of the year—." These young enthusiastic beekeepers seem rather crestfallen.

May I say that I did not become interested in bees until almost 30 years of age and during the first ten or a dozen years I had plenty of beekeeping experience but did very little reading, sorry to say. During recent years I have tried to make up for lost time, in fact, I had to burn some midnight oil to do it. However, it would take a large book to hold what I do not know about beekeeping.

Help is Scarce

During the past month or so, it has been necessary to get out in the bee yards to help do what has to be done. We have been short on help. I enjoy outside work and always learn some things that I would not learn at my desk. I am terribly tired, physically, at night, but wake up the next morning feeling fit.

Putting Weak Nuclei Over Strong Colonies

Since mentioning this in the May "Talk", a number of beekeepers over the country have written to say that they have had success in this method of saving queens.

Some of you may have "Alexander's Writings on Practical Bee Culture", put out in 1910. It contains a chapter entitled, "The Alexander Plan for Building Up Weak Colonies", in which he advises setting a weak colony or nucleus on top of a strong colony with a queen excluder between, closing up the entrance of the weak colony except through the excluder. Alexander claimed success with this method.

However, there is an Addendum to the book which says that plurality of queens in one hive is not a success. It seems that during the height of a honey flow bees will tolerate a plurality of queens for a time or as long as the honey is coming in freely; but in nearly all cases as soon as the honey flow stops, all the queens but one will be missing.

During late April and early May, we found about 25 weak colonies among hundreds of strong colonies. Some of these weaklings would have passed out during late April if we had left them as they were. Now, this is what we did:

We removed the bottom board from a hive containing a weak colony and placed this weakling on top of a very strong colony, on an inner cover (with center block removed) between the weak and the strong colony. We tacked a piece of queen-excluder zinc on the upper side of the hole in the inner cover, also a similar piece of queen-excluder zinc on the bottom side of the inner cover, Why did we do this? To keep the two queens from coming in bodily contact with each other.

We have had marvelous success, practically 100 per cent. A few days ago, we visited a yard where this operation had been performed and found one nucleus on top with brood in five combs and the queen laying prolifically. Some bees from the

strong colony below had gone up into the hive containing the weak colony to help increase the strength of the weakling and to give the queen the support she needed to develop a normal colony. The strong colony below could spare the bees, in fact, during the fruit bloom and dandelion honey flow it was necessary to give these strong colonies each a super of drawn combs to make room for brood rearing and incoming nectar. In this case the nucleus was simply kept at the top of the pile.

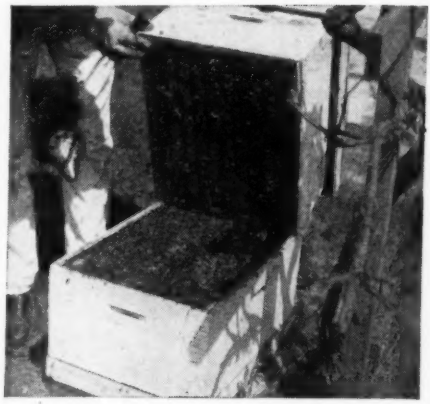
I should have said that we put a ⅝ inch auger hole just below the handhold in the upper hive containing the nucleus. This was sufficient to give the bees necessary ventilation. As the weather became warmer we pushed the hive on top, back about ¼ inch on the inner cover to provide an entrance. We tacked a wooden strip at the back and bottom of the hive to close the back opening and to prevent too much ventilation.

What to do with the Colonies on Top

Here is what we intend to do, in fact, we have already done it on two hives: We moved the strong colony to a new stand or location in the same yard, some little distance from the parent stand. We then let the hive on top, down on the parent stand. This was done during the middle of the day when there is a light honey flow on. The bees coming in from the fields naturally entered the hive which was formerly on top of the pile but now let down on the parent stand. There would be no danger of the incoming bees killing this queen because the queen and bees had the colony odor. Naturally, some of the old bees from the populous colony moved to a new stand, returned to the parent stand. These old bees, also the field bees, would naturally give what was a nucleus early in the spring, a tremendous boost.

We intend to perform this manipulation on the remainder of the 25 hives sometime this coming week. (This is May 15.) In the next "Talk" I may have more to say on this subject, but it does really look good, this matter of saving weak colonies by this method.

One wonders why there are weak colonies in the spring, especially if colony conditions in the fall were what they should have been. In some instances, weak colonies are



A populous two-story colony boiling over with bees early in the season that will store surplus honey if available.

the result of poor queens. It would, of course, be folly to save worthless queens in the manner just described but good queens are certainly worth saving, especially this spring when they are so scarce.

Since observing this weak colony situation for a number of years, I have come to the conclusion that in some instances colonies are weak because bees have drifted from one hive to another during the winter months when hives are too close together. I would appreciate comments from other beekeepers on this point.

Obviously, some colonies are weak in the spring because they did not have enough stores or enough young bees in the fall and possibly the queens were old.

How to Detect a Failing Queen

I have been asked this question more than once and really it isn't so easy to answer. During the past few weeks I have seen some marvelous queens that were doing unusually good work in egg laying. I have seen others that were doing fairly good work but apparently were reaching the end of their usefulness. How did I know this? Mainly because of their behavior and appearance. An old queen usually has a slightly different color than a young queen. She is more shiny. Her movements are somewhat slower and she walks about the combs in a somewhat listless fashion. A young vigorous queen walks steadily and as though she meant business. Then, too, an old queen is likely to lay her

eggs scattered over the brood nest area rather than in solid blocks.

Here is a question I would like to ask the experts. Why is it that some queens that have practically served their day and generation are superseded by a young queen, while other old queens are tolerated until they are practically ready to die and the colonies may become hopelessly queenless?

For the benefit of beginners, I should say that a colony sometimes becomes hopelessly queenless when the queen dies and there are no eggs or larvae in the cells from which the bees can rear a young queen, or a virgin may fail to mate normally. Under such conditions a colony may develop laying workers, that is, worker bees may start laying eggs in cells and these eggs will result in drones instead of worker bees. This is a bad situation.

A Word About Handling Bees in Town

There are hundreds of backlot beekeepers in towns and cities. Apparently, judging from reports received, some of these beekeepers do not use good judgment in handling their bees which sometimes result in neighbors being stung and the bees having to be moved into the country. A large percentage of this trouble could be obviated if backlotters would follow a few simple rules.

(1) Never manipulate hives to examine combs of brood unless the bees are flying freely and carrying nectar and pollen. If bees are inclined to "snoop" around or rob, close the hives immediately.

(2) Never put on supers containing wet combs during the day, especially early in the season. If they must be put on, do this rather late in the evening so that the bees will get the combs cleaned up during the night. Supers may be set on top of inner covers with blocks removed, then put in place later.

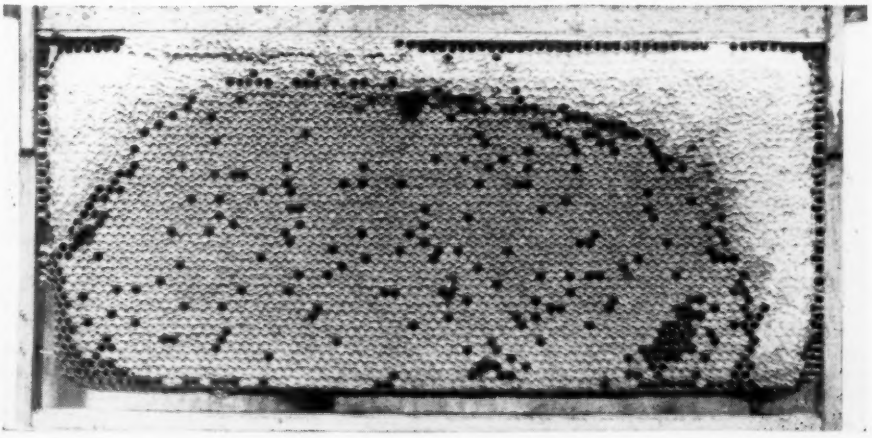
(3) If it is necessary to supply combs of honey to feed bees, or to prevent starvation, during a dearth of nectar, put the combs in the hives late in the day, using plenty of smoke. This will usually avoid getting the bees stirred up unduly.

I have a yard of about 20 hives out in the country, quite near a dwelling house, in fact, too near for comfort. The apiary has been in that location for six years. I have been very careful about the manner in which the hives have been manipulated. Should I find the bees are inclined to be "owly" I discontinue operations and go to some other yard.

Bees do not Love Black Dogs

The other evening I was doing some work at the yard just mentioned. The owner of the property has a black dog and its kennel is under an apple tree some distance from the bees. As I was about to leave the yard the owner and his daughter came out to get the dog. I had previously told the owner that the bees were gentle. He apparently gave my statement the literal interpretion because he and his daughter, also the

(Continued on page 300)



A comb with sealed brood below and sealed honey in the upper portion.

Asked and Answered

Using Combs That Have Come in Contact with Cyanogas.

Question.—Last year I had to get rid of three colonies of bees, so I did it with Cyanogas and the brood was left in these combs. There is plenty of pollen and some honey left, too. Would it be cleaned up by the bees if I used the combs this spring? The combs are only five years old, wired, and nearly all worker cells.—Knute C. Lindboom, N. Y.

Answer.—The combs from your three colonies that were destroyed with Cyanogas last year should be suitable to use this year provided, of course, they were not infected with AFB. If the combs contain pollen, all the better. Inasmuch as the combs are in good condition it would seem advisable to use them this season. As you perhaps know, brood combs can be used for many years. We have some in our apiaries that have been in use for about thirty years. It should be understood that Cyanogas does not make combs unfit for future use. The gas soon leaves the combs when they are exposed to the air.

Bees Changing Combs from Worker to Drone Cells

Question.—How can bees build drone cells on foundation with worker size cell bottoms?—F. D. Simpkins, Ohio.

Answer.—Once in awhile, bees change the pattern of the mid-rib of a comb and build drone cells in the space formerly occupied by worker cells. It seems that a normal colony of bees will have some drone cells, even though full sheets of worker foundation are used in all of the frames.

A Question on Introducing

Question.—I have a colony of very cross bees and am planning to introduce a new queen and would like your opinion of the following procedure: When the new queen arrives I would place her in the food chamber caged and leave the old queen in the brood chamber under a queen excluder. After five days cage the old queen and release the new queen below and place the old queen in the food chamber as an extra queen if something should happen to the new queen. Should the new queen be released when placing her below, or should the bees be allowed to release her by eating out the candy?—Erik Beckman, Ohio.

Answer.—What you have in mind regarding queens might work during a good honey flow. As a matter of fact, many things can be done during a flow that can not be done during a dearth of nectar or even at a time when there is a light honey flow on. We would be afraid that the bees from the colony below might not be friendly to the queen above, in the food chamber, placed over a queen excluder. If you would place the food chamber on an inner cover and have some frames of sealed brood in the middle of the food chamber with adhering bees, providing an opening above the inner cover for the bees to use, you should be able to introduce a young queen into this food chamber. You could then substitute this new queen eventually for the old queen and the old queen could be kept for a time until the new queen got under way in brood rearing.

The Double Brood Chamber Hive

Question.—Under what circumstances is it well to use two hive bodies as a brood chamber?—Joseph S. Kessler, Florida.

Answer.—In your state a number of beekeepers use single-story brood chambers. There are, however, some commercial beekeepers who are now using double story brood chambers throughout the season. It is safe to say that these beekeepers are, on the whole, getting larger crops of honey than are beekeepers who use single-story brood chambers. The reason for the larger crops is that each colony has more comb space for brood rearing, for the storage of pollen, also for honey to be used during the winter and early spring months. This means larger colonies and larger crops of honey, provided of course intelligent management is applied.

Combs Mutilated by Mice

Question.—I stored my extracting combs in the barn and even though I was pretty careful to keep them closed from mice they got at some of them and ate a lot of the combs, down to the foundation. I presume these will not be rebuilt and should be cut out. Should I use these combs again or not?—A. R. Mitchell, Conn.

Answer.—If the combs mutilated by mice have holes clear through the midribs, they are of little, if any, value in brood chambers. The bees, as you perhaps know, will construct drone cells rather than worker cells to fill up the holes in the midribs of the combs. Drone cells are undesirable in a brood chamber, at least too many drone cells. It seems that the bees must have a few drone cells in order to rear drones which appear to be necessary to insure the perpetuity of the race of bees. Combs

with small patches of drone cells may be used in extracting supers. However, we have found that the bees will fill the worker cells first and will leave the drone cells to the very last and may use them, if forced to, during a heavy flow. The theory for this behavior on the part of bees is that they are leaving the drone cells open for the queen to occupy in laying unfertile eggs for the production of drones. If your combs are gnawed down to the midrib, and not through it, the bees will reconstruct the worker cells and such combs can be used in the brood chambers.

Raising Combs of Brood to Control Swarming

Question.—Would it control swarming to raise all brood but one frame and queen to an upper story, with a half depth super between? (No excluder as I haven't many). —W. P. True, Maine.

Answer.—Raising some frames of brood into an upper story, putting a half-depth super between the brood chambers, will control swarming, but perhaps not prevent it entirely. As a matter of fact, one commercial beekeeper in New York practices this. During a very heavy flow the queen is not likely to occupy the combs in the upper brood chamber for any length of time. She may lay a few eggs in some of the combs but as the nectar pours into the hive the combs are filled with honey just as soon as the brood emerges and thus the queen is driven downstairs.

Bees Not Working in Supers

Question.—Why are my bees not working in the shallow supers? I have followed complete instructions in setting them up.— J. M. Coon, Florida.

Answer.—Strong colonies of bees are likely to store honey into supers when there is a heavy honey flow on. If the flow is light and intermittent, the bees will store the honey in brood chambers and, in some instances, this may result in swarming, because the brood chambers become clogged with honey and pollen. One way to control swarming, when such a condition prevails, is to lift the upper brood chamber, sometimes called the food chamber, to the top of the pile of supers and confine the queen to the lower brood chamber, by means of a queen excluder, placing supers directly over the excluder. Unless there is a good honey flow on, these manipulations may not result in much, if any, surplus honey being stored. To get a crop of honey, you must have very populous colonies and a good honey flow, also you should put on supers enough to hold the crop and they should go on before colonies become congested.

More Than One Egg in a Cell

Question.—What conditions make a queen lay two or more eggs in one cell? I found in one colony established from a package and several upper units of two queen systems, cells that contained three and even four eggs each.—C. B. Roscoe, Ohio.

Answer.—Queens sometimes lay more than one egg in a cell when they are crowded for laying space. This is true especially of prolific queens. This occurs sometimes when there are not enough bees in the colony to take care of the eggs a queen can lay. Now and then an old queen will lay more than one egg in a cell. Worker bees will sometimes lay eggs irregularly, with from two to four eggs in each cell.

Place to Keep Comb Honey

Question.—Last season I kept some of my comb honey for winter use, but it kept only a short time. I kept it in the attic. Did I keep it in the right place?— William Latshaw, Penna.

Answer.—Your section comb honey should be kept in a room of moderate temperature. If the room is damp the honey will take on moisture. If the room is cold, the honey may granulate. The corner of a living room or a pantry are good places to keep honey. Of course, some kinds of honey granulate more readily than others. Honeys with a high percentage of dextrose may crystallize in a relatively short time regardless of surrounding temperature.

Weed Killer to Use Around Hives

Question.—In the April Gleanings in your article "Talks to Beekeepers," you mention a "weed killer" to kill the grass in front of the hives. I am interested in knowing just what this "weed killer" is, and where I might be able to get it.—Mrs. Grover Boardman, Oklahoma.

Answer.—My next door neighbor, who is a druggist, had part of a gallon can of weed killer which he gave me last spring. The firm that puts it out is C. B. Dolge Co., Westport, Conn. The directions said to use forty parts of water to one part of the weed killer and to sprinkle it with a water sprinkler can. I followed directions and found the mixture quite effective; in fact, I visited one of my apiaries on May 10 this year and found no grass in front of the hives.—M. J. D.

Just News

The firm of Adams and Myers, Ransomville, New York, has lost its senior member. John Adams, father-in-law of Howard Myers, passed away on May 10. His beaming smile, his hearty hand-shake, his friendship, will be missed not only in western New York, where he was a familiar figure at the summer and winter meetings, but all over the State, for he attended most of the meetings of the Empire State Beekeepers' Association. At 82 Mr. Adams was probably the oldest orchardist and apiarist in western New York. He had submitted to an operation recently and only a few weeks ago Gleanings received a letter written in a steady hand, announcing that he had a new lease on life. Capable, honest, smiling John Adams. He was a good beekeeper, a good business man, a good Christian.

The Empire State has lost two of its beekeeping pioneers within a very few weeks. On page 225 of the May issue the death of N. L. Stevens was announced. Of them truly it may be said, "Beautiful and lovely in their lives, in death they were not divided."

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The Middlesex County Beekeepers' Association will assemble at the home and apiary of Mr. George E. Jones, 23 Hubbard St., Concord, Massachusetts, on Saturday, June 24, at 2 P. M. Hives will be opened, and the subject of the discussion will be "Swarm Control". The Ladies' Auxilliary has planned a supper featuring casserole dishes, rolls, salads, coffee, and ice cream with extracted honey and cake. Please bring your plates, cup, and silver implements. —A. M. Southwick, Pres.

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The season's first meeting of the Lehigh Valley Beekeepers' Association was held on May 6th at the apiary of Prof. E. B. Everitt of Allentown, Pa., and was conducted by the president, Mr. Floyd Sandt of Easton, Pa. Mr. E. J. Anderson of the Research Staff of Pennsylvania State College was the main speaker. The inspection of Prof. Everitt's colonies was conducted by Mr. Anderson. A number of the colonies were found to be strong and required additional room, some required feed, and a few of the colonies were weak. The colonies were wintere by three different methods: some hives had no packing, others had tar paper casings, while still another group had a layer of celotex and tar paper. The speaker expressed the opinion that the colonies with the celotex and tar paper packing were the best, but the difference was very slight. Three different methods of introducing package bees were also demonstrated. The method which the majority of the apiarians present preferred was the pouring of the bees into the hive and immediately releasing the queen after sprinkling her with sugar solution. The members returned to the home of Prof. Everitt where Mr. Anderson spoke on Spring Management in addition to giving a brief outline of the experiments in Apiarian Science that are now being conducted at Pennsylvania State College. The meeting adjourned after partaking of a delicious honey drink served by the host. The next meeting will be held on June 24th at the home apiary of Mr. Floyd Sandt, R. D. 2, Easton, Pa.—R. H. M. Meier.

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The Bronx County Beekeepers' Association will enjoy a picnic and beekeepers meeting at the home and apiary of Mr. Peter Das, Hillside Ave., Peekskill, N. Y., on June 11th. Mr. Das has a large apiary and a fine strain of bees. This will be a full day from 9:30 in the morning until the evening. Members will go by auto, or the New York Central R. R. —Harry Newman, Sec.

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"You can't keep a good man down". Some of our readers will remember that George H. Rea, formerly Extension Instructor at Cornell University, Ithaca, N. Y. retired because he felt he needed a rest.

Dr. E. F. Phillips once said that Mr. Rea was the best bee extension in the United States. Mr. Rea writes:

"You will be surprised to learn that I am State Apiarist for the State of Tennessee. I am not here because of pleasure or profit but because the beekeepers of this state have had no permanent State Apiarist for a long time and I am answering the pleadings for help in this time of emergency. It is hard to again pull up stakes from private life and take to the road but there seems to be great opportunity and need for work here. . . . . Of course there is

an emergency on now but in the past few months, four states have appealed to me for help and no one is to be found. At last I gave way to my desire to use my training and whatever ability I may have to help out."

Here's congratulations, George, not only to you but to the state of Tennessee. You will be able to teach and preach better beekeeping and it is to be hoped that your work will broadcast into other states.

• • •

Who's Who in Apiculture.—On page 220 of the May issue the name of George B. Harston should have appeared as the bee inspector for the state of Wyoming.

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The Michigan summer bee meetings will be held on August 2, at Sylvania, Ohio, at Ross Wyants; on August 3, Ithaca, Michigan, at the home of Dr. Howard Potter; on August 4, at the home of Frank Slusher, Traverse City; and on August 5, at Burt Lake State Park, Indian River.

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The front cover page of April, 1944 issue of Gourmet, the Magazine of Good Living, has a colored picture of a prepared lunch including a beautiful section of comb honey on a plate. This should help to keep the attention of the public focused on honey, the oldest and choicest sweet.

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Mr. George Seastream, of Moorhead, Minn., passed away on April 30. Mr. Seastream was an extensive beekeeper, having also kept bees in Illinois before going to Minnesota. He was 75 years old, and was born in Sweden.

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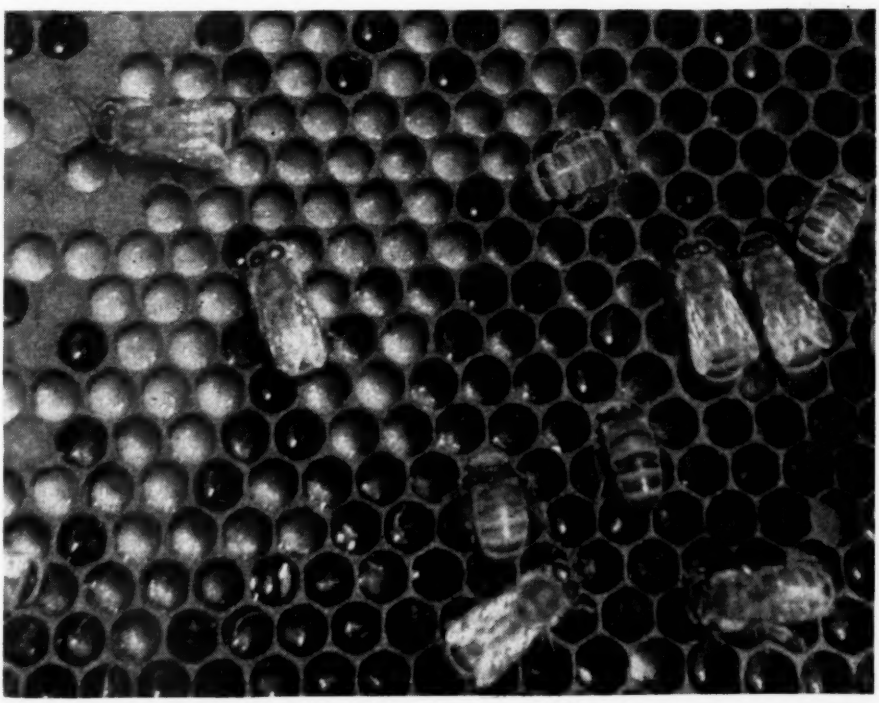
A three-column front page article entitled "Honeybee Has Big Job," by Dr. R. L. Parker, Professor of Apiculture, of Kansas State College, Manhattan, also State Apiarist, appeared in the May 10 issue of "The Weekly Kansas City Star" which has over 350,000 subscribers. Such an article emphasizing the importance of the honeybees to agriculture is bound to further the interests of our industry. Good work, Dr. Parker.



A close-up view of a brood comb with a few worker bees, also some sealed and unsealed worker brood.—Photo by J. H. Jamison, Ada, Ohio.

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 8 cts. per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding.

HONEY FOR SALE

NEW YORK Fancy buckwheat, amber honey, 14c lb.; 24 pound jars, $4.75; six 5-lb., $5.40. L. Konces, North Abington, Massachusetts.

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Manufacturers of Beekeeper's Supplies, Onsted, Michigan.

PRODUCERS and DEALERS alike are referred to page 294 of this number of Gleanings, regarding MICHIGAN'S f i n e Clover honey. The TOWNSEND SALES COMPANY Speaking.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We cannot guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C. O. D. terms except where the buyer has thoroughly established his credit with the seller.

COMB HONEY that looks and tastes right. Geo. Rehman, North Baltimore, O.

WE PAY CASH for extracted clover honey. Fairfield Honey Company, Millersport, Ohio.

WANTED—White and amber honey; any amount. D. F. Treap, 317 Keenan Ave., Cuyahoga Falls, Ohio.

HONEY AND BEESWAX—Highest prices paid. Mail samples. Advise quantity. BRYANT AND COOKINHAM, LOS ANGELES, CALIF.

CASH FOR YOUR HONEY, light or dark. Regular trade, send sample. 60-pound cans furnished, if desired. W. R. Moomaw, Stone Creek, Ohio.

HIGHEST cash return made the day we receive your beeswax. Write for shipping tags and quotations. Walter T. Kelley Co., Paducah, Kentucky.

WANTED—All grades of comb and extracted honey. Bee supplies and honey containers for sale. Prairie View Honey Co., 12243 12th St., Detroit, Mich.

HONEY WANTED—All Grades and Varieties. Highest Cash Prices Paid. Mail Samples. State Quantity. HAMILTON & COMPANY, 1360 Produce Street, Los Angeles, Calif.

WANTED white or light amber extracted honey from 1000 lbs. to a carload. Cash waiting. Send samples and best price to Honeymoon Products Co., 39 E. Henry St., River Rouge, Mich.

HONEY AND WAX WANTED. All grades. Any quantity. Send samples and your best cash price. We carry large stock of Tin and Glass honey containers. ALEXANDER COMPANY, 819 Reynolds Rd., TOLEDO, OHIO.

COMB HONEY WANTED—State size sections, how packed, and the quantity you have. Frank H. Hauck, P. O. Box 84, Kew Gardens, N. Y.

CLOVER HONEY WANTED—Large or small lots. Would like to establish permanent connections with several good producers. Ellsworth A. Meineke, R. 1, Arlington Heights, Ill.

WHEN YOUR CROP is ready let us hear from you. Ceiling prices paid for best grades honey, amber grades, one cent less. Wanted without having been heated in 60-pound cans. The cans you may have when empty, or exchange. BEE-KIST PRODUCTS CO., P. O. Box 1158, San Antonio, Texas.

FOR SALE

MY FAVORITE BEE VEIL. Write for description and price. G. M. Ranum, Mount Horeb, Wisconsin.

USED and new supplies—hives, supers, extractor. No disease. T. A. Kragness, 6031 Wentworth, Chicago, Ill.

POLLEN TRAPS, three sizes, approved by Dr. Farrar, $2.50 each postpaid. Geo. DeKoeyer, Baraboo, Wis.

YOUR WAX worked into high quality medium brood foundation for 16c a lb.; 100 lbs. $12.00. Fred Peterson, Alden, Iowa.

COMB FOUNDATION at money-saving prices. Wax worked at lowest rates. Comb and cappings rendered. Robinson's Wax Works, Mayville, N. Y.

MOLASSES, pure New Orleans, Alabama Sugar Cane, $1.00, in 5 lb. pail, 15c packing charges; 10 lb. pecans. $3.25 f.o.b. Louisville, Ky. Lose Bros., 206 E. Jefferson.

FOR SALE. Complete 1 inch tinned copper spiral coil 19 x 20 in., weight 56 lbs., top condition, $30.00. Also 125 Root 10 frame wire and wood queen excluders, 35c each. No disease. Gordon Bell, Badger, Minn.

SAVE MONEY by letting us work your wax into wired regular comb foundation. Large catalog describes everything. You pay only wholesale factory prices as we have no agents. Walter T. Kelley Co., Paducah, Kentucky.

WRITE FOR CATALOG. Quality bee supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies, Onsted, Michigan.

LEWIS-DADANT BEE SUPPLIES IN MINNEAPOLIS—Prompt shipment from complete stock. Send list of supplies for quotation. We carry carloads of honey containers in stock. Honey and beeswax accepted in trade or will pay cash. Honey Sales Company, 1806-08 N. Washington Ave., Minneapolis, Minn.

QUEENBEE PAINTING outfits $1.00, colony records 10-15c. postpaid. Southwick Apiaries, Waban, Massachusetts.

THE GOVERNMENT has granted me material to build several more Hydraulic Hive Lifters, mounted on rubber wheels. Write for description and price. Wade H. Foster, Bad Axe, Michigan.

BEEKEEPER'S HOIST. Durable equipment. Eliminates heavy lifting. Justifies cost each season. $20.00 FOB, Corning, Iowa while materials last. Bee Turner.

EXTRACTORS FOR SALE

ROOT BEE SUPPLIES—One used 45-frame Root extractor. Elliott Honey Co., Menomonie, Wis.

One four frame, reversible, power extractor $35.00, one nearly new electric uncapping knife, $7.50; one wax extractor, $5.00; ten gallon, double boiler type, storage tank with self closing valve, $10.00. Jason Cady, 101 S. Erie St., Mayville, N. Y.

EXTRACTORS—2-frame reversible, excellent condition, $20.00; 4-frame non-reversible, $10.00. Both with power drive. Also 75 8-frame supers with separators for 4 x 5 sections. Eugene Potter, Rt. 1, Canton, N. Y.

FOR SALE—Root four-frame extractor, reversible, good condition. One 90 gal. homemade honey tank; one 40 gal. cappings tank; 50 or more comb honey supers; 40 shallow extracting supers; 60 to 75 hive bodies, some homemade of cypress. R. D. Armstrong, Harrodsburg 1, Ky.

BEES AND QUEENS FOR SALE

BRIGHT ITALIAN QUEENS, $1.00 each. Ready in May. D. W. Howell, Shellman, Georgia.

CARNIOLAN-CAUCASIAN queens, limited, $1.00, postpaid. Eppling's Apiaries, Rt. 2, Covington, Va.

NORTHERN-BRED Italian queens. Ready after June 20th, $1.00 each. Shirl Baker, Rodney, Michigan.

CAUCASIANS and Italian queens, $1.00 each for the rest of the season. Miller Bro., Three Rivers, Texas.

BEST OF QUEENS now ready to book orders for after June 15th, price, 75c each. D. P. Green, Rt. 2, Deland, Fla.

CAUCASIAN bees and queens. Booking for shipment after May 10th. 2-lb. pkg. $3.50; 3-lb. pkg., $4.50. Lewis & Tillery Bee Co., Greenville, Ala.

TWO HUNDRED colonies bees, excellent quality Italians. Guaranteed free from disease. Write for information. Joe C. Weaver, R. 3, Box 423, Springfield, Mo.

THE NORMA ROY APIARIES. Italian bees with untested queen. 3 pounds, with queen, $4.00. Live delivery and health certificate. Norma E. Roy & Son, Hessmer, La.

GOLDEN ITALIAN QUEENS, finest quality, 1 to 25, $1.25; 25 to 100, $1.15; 100 up, $1.05 each. Satisfaction guaranteed. Carolina Bee Farm. W. O. Curtis, Mgr., Graham, N. C.

My entire 10-frame bee equipment, 89 colonies, 290 deep bodies, 215 shallow supers with combs. Bees inspected at time of sale. Many articles not listed. If interested, send for list. Leland Farnsworth, Davidson, Mich.

HONEY WANTED
Carloads and less, all grades.
Will pay top prices.
Would contract now for crop.
Also Beeswax.
H. & S. HONEY & WAX COMPANY, Inc.
265 Greenwich Street, New York, N. Y.

HONEY WANTED
Carloads and less. All grades. Pay cash. Can furnish containers.
J. W. REITZ & BROS.,
Summerfield, Florida

WANTED--Extracted Honey All Varieties
Send samples and delivered prices to
JEWETT & SHERMAN COMPANY
Cleveland, Kansas City and Brooklyn

HONEY WANTED
Carloads and less than carloads.
Mail sample and best prices in all grades.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

Comb Honey Wanted
Advise quantity, grade, size section and how packed.
FRANK H. HAUCK
P. O. Box 84, Kew Gardens, N. Y.
Bank references furnished on request.

HELLO, FOLKS
Here we are again
Stevenson's Line-bred Goldens
To tell you we had too many Package Bees booked to advertise sooner.
Quoting queens, 1-24 $1.25 25-up $1.10
STEVENSON'S APIARIES
WESTWEGO, LA.

Three-Band Italian Pkg. Bees and Queens

2-lb. pkg. with queen	$3.20
3-lb. pkg. with queen	4.20
4-lb. pkg. with queen	5.20
Queens each	1.00

HOMAN BROS.
Shannon, Miss., R. R. 2

Thanks to All

who have patronized us this season as well as in the past. We have done our best to maintain our our high Quality and Service in face of a capacity business and shortages of materials and labor.

We also have done our best to instill the home loving instinct in our bees so if they wander away from home do not blame us, as they were all reluctant to leave their parent colony and had to be forcibly placed in the package for shipment. Some even found ways to escape. Seriously, though, we hope you will pardon any mistakes we have made as they are bound to occur in the haste incident to shipping bees this year.

Rossman & Long
Box 133 **Moultrie, Ga.**

Sold Out

• • •

Regret that no additional orders for package bees or queens can be accepted until further notice. Thanks.

• • •

York Bee Company

JESUP, GEORGIA. U. S. A.

(The Universal Apiaries)

Three-banded Italian bees and queens finest quality. Package bees, 2-lb. and queen, $3.50; 3-lb. and queen, $4.50; select untested queens, 1 to 25, $1.10; 25 to 100, $1.05; 100 up, $1.00. Health certificate with every order. Alamance Bee Co., Graham, N. C.

WANTED TO SELL 600 colonies of bees in Michigan with locations, including hon ey crop. All standard 10-frame full equipment. Bees are in good shape and guaranteed free from disease. Reasonable price to cash buyer. Box 2006, Gleanings in Bee Culture, Medina, Ohio.

Our 600 colony bee and honey outfit (disease free). Will sell everything including 10 acre farm home with large modern honey extracting and packing house. Or will sell bees and hive equipment separately. Reason for selling—labor shortage. M. J. Beck Co., Box 7, Lansing 1, Mich.

HELP WANTED

WANTED—Strong man, preferably with some experience, to help with 23 apiaries. Ray C. Wilcox, Odessa, N. Y.

WANTED—Experienced man in queen, package and honey production on shares. No drunkard wanted. Chester Richardson, R. 1, So. Theobald St., Greenville, Miss.

WANTED—Experienced man immediately. Give references, experience, and particulars. C. M. Hurst, Blackfoot, Idaho.

APIARY SIGNS

APIARY SIGNS reduce pilfering, stealing. Signs create interest in Apiculture. Will save triple the cost or money refunded. Eight signs dollar postpaid. Koenitzer, Muscotah, Kansas.

WANTED TO BUY

WANTED to buy used bee cages and cans. G. C. Walker, Lexington, Texas.

MAGAZINES

THE INDIAN BEE JOURNAL—The only bee journal in India. Sample copy free. Yearly, 7s. 6d., International Money Order. Apply Editor, Indian Bee Journal, Jeolikote, Dist. Nainital, U. P. India.

WESTERN CANADA BEEKEEPER, official organ of the Manitoba Beekeepers' Association, one year $1.00; in combination with one year's subscription to Gleanings in Bee Culture, $1.75. Wallingford Building, Winnipeg, Canada.

THE BEE WORLD—The leading Journal in Great Britian and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy post free, 12 cents stamps. Membership in the Club, including a subscription to the paper, 10/6. The Apis Club, L. Illingsworth, The Way's End, Foxton, Royston, Herts, England.

READ the South African Bee Journal to be conversant with conditions from far afield. Subscription 5/ per year. For further particulars, write to the Hon. Treasurer, P. O. Box 43, Cleveland, Johannesburg, S. Africa.

MANY BEEKEEPERS have proven raising fox, mink nutria, muskrats, rabbits, highly profitable. Send dime for sample copy. Canada's oldest fur farming magazine telling how. Fur Trade Journal of Canada, Box 31, Toronto 2, Ontario.

INTERESTED in Angora Goats? Read the Sheep and Goat Raiser, Hotel Cactus, San Angelo, Texas, the only ranch magazine published serving the Angora Goat industry. Subscription $1.50, Sample copy fifteen cents.

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THANKS

to our customers for a successful spring season. We can still fill small orders at the following prices:

Prices of Package Bees with Queens			
Lots of	2-lb.	3-lb.	Ex. Queens
1 to 24	$4.00	$5.00	$1.25
25 to 99	3.85	4.80	1.10
100 or more	3.75	4.70	1.10

The Island Apiary
Collier City, Fla.

HANDY HIVE TOOL & PLIERS COMBINED

Strong and durable for heavy service but light to handle. Give quick work and best frame lifter and holder. Price $1.00. California Bee & Tool Co., 810 W. Pedregosa St., Santa Barbara, Calif.

PETTIT'S PACKAGE BEES AND QUEENS

The package season is past for another year. The system of booking orders all through the summer, subject to prices that would be announced in November, worked very well and we were practically sold out by December.

The season was favorable for raising bees but queen breeders had a hard time with continuous rains, clouds and wind during March and April. This prevailed from the Atlantic west to Texas and very few shippers had enough queens to ship the packages they had promised on time. Bees were swarming and we had to give preference to three-pound packages which dispose of more bees with the limited supply of queens. Every effort is made to give service, but weather is something we cannot control.

Package orders are already being booked for '45, subject to prices that will be announced in Nov.

We now have plenty of first class summer queens.

Prices June through September
1-23 .90 ea., 24-99 .85 ea., 100-up .80

Please send cash in U. S. funds with order. Prompt shipment, live delivery, satisfaction.

Morley Pettit

Tifton, Georgia, U. S. A.

BUY U. S. WAR BONDS AND STAMPS

BETTER-BRED QUEENS---Three-Banded Italians

2-lb. packages with queens	$3.50
3-lb. packages with queens	4.50
Queens Any quantity	.80

CALVERT APIARIES, Calvert, Alabama

BERRY'S RELIABLE BEES AND QUEENS

Gentle Daughters of Queens Bred for Resistance

		June Prices		
Quantity	Queens	2-lb. pkgs.	3-lb. pkgs.	4-lb. pkgs.
1-24	$1.00	$3.25	$4.25	$5.25
25-100	.90	3.10	4.10	5.10
100-up	.75	3.00	4.00	5.00

For queenless packages deduct price of queens. Wings of queens clipped free of charge when wanted. All queen bees are select, the culls we destroy.

Strengthen your weak colonies ahead of the honey flow by adding a few bees. Large honey producers tell us there is nothing that beats it. We suggest that you try it. If you are dividing or making increase, shake in a package with each increase, and watch results. We guarantee a pleasant surprise.

M. C. BERRY & SON, Box 684, Montgomery, Ala.

Forty Nine Years with the Bees

About MICHIGAN'S f i n e Clover Honey. About MICHIGAN'S Up-to-the-Minute Honey Producers.

For a decade the writer has been almost alone in advertising MICHIGAN Clover honey. F i n e Clover Honey. In the first place we have something to advertise. That is important. Old c l e a n Clover fields, free from the many weeds grown in some states, that interfere with the production of c l e a n pure Clover honey. Mostly from Alsike and Sweet Clover, with a sprinkling of Alfalfa. All tops in honey. On top of this we have an array of top-notch honey producers in Michigan. If it were not for the fact that we have these up-to-the-minute producers in Michigan, this result could not have been accomplished. Together you are offered the very best quality honey that skill and experience can produce. Why go elsewhere to buy your supply of honey, when the opportunity is open to you to buy the best, at no additional price. To both the producer and the buyer: When you have honey to sell, or if you are a packer and are in need of some fine honey, write me. No available honey until the new crop is harvested in July

TOWNSEND SALES COMPANY

E. D. Townsend Since 1876 Northstar, Michigan

THREE-BANDED ITALIAN BEES AND QUEENS

Send us your package bee and queen orders for prompt shipment.

We expect to have a large supply of queens for prompt shipment during June and July, also several hundred packages for June shipment.

Prices

Quantity	Queens	2 lb. w|q	3 lb. w|q	4 lb. w|q	5 lb. w|q
1-24	$1.00	$3.30	$4.30	$5.30	$6.30
25-99	.90	3.20	4.20	5.20	6.20
100-up	.80	3.00	4.00	5.00	6.00

For queenless package subtract price of queen.

NOTICE

Due to war conditions we find it necessary to change our office to our shipping point at LEROY, ALABAMA. Please address all letters to us LEROY, ALABAMA, and telegrams to JACKSON, ALABAMA.

HOLDER APIARIES

LEROY, ALABAMA

1944 QUALITY BEES AND QUEENS

Yes, now ready — AT LOWER PRICES — Choice Queens Young Bees

YOU CAN COUNT ON US

We will do our utmost to ship the day you specify and to give you the utmost in quality and service. Safe arrival and satisfaction guaranteed, state health certificate furnished.

- Prices -	1 to 24	25 to 100
2-lb. Pkg. w|q	$3.50	$3.30
3-lb. Pkg. w|q	4.50	4.30
Untested queens	1.00	0.90
Tested queens	2.00	1.80

Package bees F. O. B. Express. If wanted by Parcel-post add Postage.

NORMAN BROS.' APIARIES, RAMER, ALA.

St. Romain's "Honey Girl" Italians

Package Bees and Queens

• • •

We didn't have sufficient help to ship our usual quantity of package bees during April and May. Our colonies are strong now and will remain strong. We can supply three, four and five pound packages throughout the month of June

3-lbs. bees and queen	$4.50 per pkg.
4-lbs. " " "	5.40 " "
5-lbs. " " "	6.30 " "
Queens alone	1.00 each

Empty package cages and cans to be returned. All orders for five or more packages, by express charges collect.

• • •

St. Romain's "Honey Girl" Apiaries

Morcauville, Louisiana, U. S. A.

KNIGHT'S Leather Colored Italian Queens

• • •

The best honey gatherers.

Prices:	1 to 24,	$1.00 each
	25 to 99,	.85 "
	100	.80 "

All queens guaranteed mated pure.

• • •

Jasper Knight

Hayneville, Ala.

Baby Bees in June

BABY BEES IN JUNE

We will have several hundred nice heavy packages of very young bees for sale in June, either with queen or queenless. After heavy spring shipping all bees will be young and will help you increase your honey crop. Order direct from the following prices:

3-lb. pkgs. with queens	$4.30
25 or more	4.20
2-lb. pkgs. with queens	3.30
25 or more	3.20
Selected untested queens (each)	1.00
25 or more	.90

If wanted queenless, deduct price of queen.

• • •

N. B. SMITH & CO.

CALHOUN, ALA.

Queens —OF— Quality 90c each

• • •

- By Return Mail -

Bright 3-Band Italian Bees and Queens of Highest Quality. Purely mated, safe arrival and satisfaction guaranteed. Packages express collect. Health certificate furnished with each shipment.

Mail your orders TODAY and be among our MANY SATISFIED customers.

Untested Queens	$.90
Tested Queens	1.80
2-lb. pkg. with Queen	3.40
3-lb. pkg. with Queen	4.30

• • •

John A. Norman

ROUTE 2 Ramer, Ala.

EDITORIALS

(Continued from page 282)

tering will allow it to increase. Nosema contributes to winter losses, retarded brood rearing or colony development, and queen supersedure, particularly in package colonies.

Dr. E. F. Phillips, when in Columbus last, expressed an opinion somewhat along similar lines. An old enemy, yes; would it be more destructive in the future? No, he said. Good wintering and strong colonies will stave off the malady, or more exactly, the protozoan, where it will do comparatively little damage.

Some Facts—How to Recognize It

This has already been given by Dr. Farrar, on page 8, January Gleanings, this year, namely as follows:

Infected bees often appear sluggish, and they may crawl from the hive entrance during the early spring and summer. Heavily infected populations do not support normal brood rearing. Under winter conditions the affected bees may be distended with feces although distention gives no proof of infection. Bees suffering from dysentry as evidenced by the discharge of feces within the hive are almost certain to be infected. The infected bees are most likely to be obtained from the top of the cluster before the colony has opportunity for flight and from the snow following a flight.

Disappearing Disease

Now there is another form of adult bee disease where the bees, all of a sudden at the beginning of a honey flow, desert the hives and run all over the ground with wings disjointed, apparently in great pain and running like crickets. This, we have diagnosed as the disappearing disease. The bees in the colony disappear and the disease disappears. We have seen it all over the United States and it seems to go in cycles. This malady, whatever it is, is not due to Nosema, says Farrar. Nosema may aggravate it and make it worse. Dr. Dunham, of Ohio, says he has found the protozoan of Nosema in these running bees.

Evidently there is yet something for the future to tell us, but in the meantime, if one finds something suspicious in his hive he better send a sample to the United States Bee Culture Laboratory, at Beltsville, Maryland; beekeepers in Ohio to Dr. W. E. Dunham, Extension Department, Ohio State University; beekeepers of Wisconsin to Dr. C. L. Farrar, University of Wisconsin, Madison; and New York beekeepers to Dr. E. F. Phillips, Cornell University, Ithaca, N. Y.

Convincing the Mayor A number of beekeepers in town and cities have reported cases where the city councils have attempted to eject bees from within corporation limits, due to alleged trouble made by the bees.

Unfortunately, a few beekeepers apparently do not use good judgment in operating their apiaries and open hives on cool days when bees are at home and resent being handled. If all city and town beekeepers would choose warm days when bees are flying to open hives much trouble with neighbors would be obviated.

It seems that some disgruntled neighbors who have a real or immagined grievance with beekeepers may stir up trouble and use the bees as an alibi. It will pay town and city beekeepers to cultivate the friendship of all neighbors, if possible, and sweeten them up with some honey occasionally. Honey does actually help to keep neighbors sweet.

Just recently a town dweller whose bees were about to be ordered outside of the corporation by the city council, made a visit to the Mayor of his city, and carried with him a comb of brood and honey with bees and queen. The beekeeper convinced the mayor that bees are not vicious if handled properly and that they are essential for pollinating fruit and vegetables, to increase food production. The case was dismissed and the bees were not moved.

• • •

Soybean Acreage May Decline Soybeans have received considerable publicity during the past few years. Farmers have been urged to plant soybeans to take care of the shortage of imports from China. The first noticable increase was about 1935 when the invasion of Manchuria by Japan stopped all exports. In 1933 and 1934 the Ohio farmers were planting approximately 300,000 acres. This has increased to 1,500,000 acres or just five times as much. This increase has been due to the high price for soybeans, the response to the patriotic appeal, and the use of soybeans in plastics.

However, authorities believe that there will be a big shrinkage of soybean acreage, perhaps of a million acres. There are a number of factors that will influence this decline. Soybeans are known as hunger plants. They remove considerable plant food,

and leave the soil in poor physical condition and subject to erosion. The opening of world trade will tend to reduce the high price of soybeans and they will not be as profitable to raise. Plastics may not be so popular when aluminum and magnessium are turned back for civilian use.

It seems likely that more sweet clover and other nectar-producing legumes may again be grown in the near future. Such a change would benefit the beekeeping industry.

During the past few years the acreage of sweet clover and alsike has decreased considerably, as the acreage of soybeans has increased. Unfortunately soybean is not a major honey plant, in fact, it gives very little if any nectar and as already stated tends to impoverish the soil. Sweet clover is one of the best soil building legumes.

BEES - ITALIANS - QUEENS

We can book a few more small orders at the following prices:

2-lbs bees with queen	$3.50 f.o.b.
3-lbs. bees with queen	4.50 f.o.b.
Queens	1.25 ppd.

W. E. Plant
Rt 2, Hattiesburg, Miss.

NORTHERN BRED

Dark Leather Colored Italian Queens
Daughters of Queens Bred for resistance to disease.
(our own stock)
For delivery June 15th and later
$1.00 each

Diemer Bee Co., Liberty, Mo.

BUY U. S. WAR BONDS AND STAMPS

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Extra gentle, prolific, long tongue, little inclined to swarm, dependable workers - 10% to 40% ahead of the average Italians. Foundation stock from the mountainous region of Terek, Caucasus.

CARNIOLANS

Build up rapidly even during unfavorable springs. Prolific at all times, very gentle, best of workers, 33rd year with them.

Prices: Untested queens, ... $1.00 each.
Tested " ..... 1.75 each.
Ready about June 20th
Queens by Air Mail 6c extra per queen.

Albert G. Hann, Glen Gardner, N. J.

McVay AT Jackson

SOLICITS YOUR ORDER FOR

QUEENS OF QUALITY

$1.00 each; 25-100, .90c; 100, 80c
3-lb. pkg. with queen, $4.30.

J. F. McVay, Jackson, Ala.

Package Bees and Queens

We can handle a few more orders for package bees and queens.

All Italian, Young bees full weight.
2-lb. pkg. $3.50; 3-lb. pkg. $4.50
4-lb. pkg. $5.50; 5-lb. pkg. $6.50
All packages with queens. Our big packages will be fine for late buyers.

Untested Queens, $1.00 each, Mail postpaid. Packages by Express.

CRENSHAW COUNTY APIARIES,
Rutledge, Ala.

QUEENS

After May 15 we have some carefully bred and selected queens to offer:

Prices to June 1		Prices after June 1	
1-24	$1.10	1-24	$1.00
25-99	1.05	25-99	.90
100-up	1.00	100-up	.80

EUGENE D. (GENE) CUTTS
Citronelle, Alabama

BUY U. S. WAR BONDS AND STAMPS

MOUNTAIN GRAY BEES

No more orders for bees or queens accepted until further notice appears in Gleanings. Thanks to all our friends and customers.

BOLLING BEE CO.
Bolling, Ala.

We are doing our best to keep the supply of Hollopeter reared Italian queens equal to the demand, but quality is not sacrificed for quantity.

Untested queens $1.00 ea.; Tested $2.00 ea.
We cannot promise by return mail delivery on all orders before July.

White Pine Bee Farms, Rockton, Pa.

CHOICE ITALIAN QUEENS and package bees.

We have been furnishing queens and package bees through other shippers. Let us furnish yours direct. Write for prices.

CLIFTON APIARIES
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$1.00 a Year

Is one of the leading national beekeeping publications. Single copy current issue, 10c. Combined with Gleanings in Bee Culture it makes a splendid combination. Both magazines, one year, $1.75.

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With Gleanings it provides a combination that covers the beekeeping field.
Both magazines for one year, $1.75

BEEKEEPERS ITEM
P. O. Box 687 San Antonio, Texas

When Writing to Advertisers Mention Gleanings

ATTENTION

Carefully Produced Three - Banded Italian Queens For Commercial Honey Production

1 to 23	$.90 each
24 to 99	.85 "
100 or more	.80 "

Send cash with order in American funds. All orders will have prompt attention. Live delivery and satisfaction guaranteed.

"More than 20 Years of Commercial Queen Production"

JOHN C. HOGG
Tifton, Ga., U. S. A.

QUEENS! QUEENS! QUEENS!
ITALIANS

Let us do your requeening this year. We are taking orders for June and summer queens. 10% books your order, balance 10 days before shipping.

1-25 $.80 25-up $.70

Air mail 5 cents extra per queen.

SUNKIST BEE CO.
Rt. 2, Box 9 Tele. 1299-J Houma, La.

MOORE'S STRAIN

Away back in 1879, I commenced rearing Italian queens with the object of improvement constantly in view. By careful selection during all these years I have succeeded in producing a strain of three-banded, leather-colored Italian bees known as Moore's Strain of Italians which has won a world-wide reputation for honey-gathering hardiness, gentleness, etc.

Send for descriptive circular and read reports from those who have tried them. Untested queens $1.25 each; 6 for $7.00; 12 or more $1.00 each.

J. P. Moore, Rt. 3 Falmouth, Ky.

Former address, Morgan, Kentucky
Safe arrival and satisfaction guaranteed

1944 PRICES FOR ITALIANS PKGS. BEES AND QUEENS

LOTS OF QUEENS	2-LB.	3-LB.	4-LB.
1 - 24	$1.10	$3.50	$4.50	$5.50
25 - 99	1.05	3.35	4.35	5.35
100 up	1.00	3.20	4.20	5.20

FARRIS HOMAN
Shannon, Miss.

QUEENS

Italians Daughters of Queens Bred for Resistance Caucasians
Booked up to June 1st. on package bees. Can handle a few extra queen orders, for May and June.
See former ads for prices, or send for CIRCULAR. Over 25 years a shipper.
BLUE BONNET APIARIES, Route 1, Box 70, Mercedes, Texas

Italian Queens—Package Bees

Let us supply you with your package bee and queen requirements during June with our productive stock. Prices

Lots of	QUEENS	2 LB. PKGS.	3 LB. PKGS.
1-24	$1.00	$3.40	$4.40
25-99	.95	3.20	4.20
100-up	.90	3.00	4.00

No disease in our yards. Health certificate furnished.
BESSONET BEE COMPANY Donaldsonville, La.

the Hubbard APIARIES

WRITE FOR FREE CATALOG

Quality Bee Supplies Factory Prices
Prompt Shipment from Stock
Satisfaction Guaranteed

THE HUBBARD APIARIES
Manufacturers of Bee Supplies
ONSTED, MICHIGAN

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Pacific Stockman, $1.
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Arizona Stockman, m., $1.50
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NRA Round-Up, m., (rodoes), 50c

Pigeons
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Ozark Guide, Rayburn's, b-m, $1.

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MAGAZINE MART

Dept. GB Plant City, Fla.

Sample copies at single copy prices.

TALKS TO BEEKEEPERS

(Continued from page 285)

dog, walked up to where I stood in the yard. The dog made a beeline for the entrance of a hive. I held my breath as I have seen dogs badly stung. The dog apparently sensing danger turned away like a flash and left the bee yard. That was a close call. I'll have to explain to the man, who by the way moved onto the place recently, that bees under certain conditions may sting and that it is well to keep a safe distance from the yard. If the dog should get stung, it will be unnecessary to warn him of the danger, as dogs learn quicker than some humans.

Be Ready for Surplus Honey

In most sections of the North surplus honey is stored during June and July. I hope all beekeepers, especially beginners, may have colonies sufficiently strong and supers on the hives so that the maximum crop may be secured. It is needed.

SIFTINGS

(Continued from page 277)

two last walls: all this work is at first rather massive and must not remain thus. The skilled workers perfect it, thin it down, polish it, straighten it; their jaws serve them as planes and files. A really fleshy tongue fastened at the base of the jaws, also helps the work of the teeth. Many workers succeed each other in this labor; that which one has only sketched another finishes a little further, a third perfects it and altho it has gone through many hands it appears as if made in a mold."

• • •

An old bee book "The Feminine Monarchie" by Chas. Butler, published in 1634 at Oxford, England, contains some sound advice on the location of an apiary. The hives should be sheltered from the winter winds but exposed to the southern sun for warmth. The "be-garden" should be fenced from cattle and swine, and the hives should not be too close together. Some small trees near the hives are convenient for swarms to cluster on. Grass and weeds should be cleared from fronts of hives to permit bees to leave and enter the hives easily. (Sounds as though it might have been written recently.—M. J. D.)

BEES

We Can Accept Orders For Few Thousand More Packages FOR SHIPMENT DURING LAST HALF OF MAY

Prices with Queens:	2-lb.	3-lb.	4lb.
1 - 24 pkgs.	$3.65	$4.65	$5.65
Up to 99 "	3.50	4.50	5.50
Above 99 "	3.35	4.35	5.35

Loose-Queen Type, one dollar extra. Queenless packages, one dollar less.

THE PUETT COMPANY

Hahira, Ga.

JENSEN'S

"Magnolia State"
Strain Italian Queens

Worth the difference, or we will buy 'em back. Every queen we send out must meet our rigid standard, and then must perform satisfactorily after successful introduction, or she is ours to replace.

30 years we have spent at commercial queen-rearing and we are conceited enough to claim we know what it takes. No novices do the work in this importa phase of our operations. There is a reason for the popularity and demand for our queens.

"A few cents can make a whale of a difference." There is no substitute for "Quality". Requeen with Jensen's queens and watch results. You will be glad you did. With a very successful package season behind us, our output will average 150 or more queens daily.

We expect to have some daughters of queens bred for resistance ready for sale in about two months. Price t same as our others.

Prices balance of season:

1-24	$1.05 each
25-100	1.00 "
101-up	.95 "

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Macon, Miss.

Many Beekeepers Never Give

THEIR BEES A BREAK

Bees will work unceasingly from dawn till dark and store a maximum honey crop under favorable conditions if the beekeeper helps with **Root Quality Bee Supplies.** Root's foundation with "True to Nature" base will produce combs quicker,—and this means more honey.

Root's 3-Ply and Root's Thin Super

We have fair stocks

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The A. I. Root Company

Medina, O. and New York City

Bright Italian Bees and Queens

We will have quite a few package bees to offer for June and July delivery as we will have all orders filled that we have on the book. We feel sure that we can fill your order for Queens by return mail or in a few days later. Safe arrival and free from disease guaranteed. All packages F. O. B. express.

2-lb. pkg. with queen	$3.40
3-lb. pkg. with queen	4.30
4-lb. pkg. with queen	5.50
Untested Queens	.90
Selected Untested	1.00

NORMAN BEE CO.

Ramer, Ala.

Sumter County Queens

ITALIAN QUEENS

—Vim— —Vigor— —Vitality—

Prices after June first

Queens 1-24	Queens 25-99	Queens 100-up
$1.00	$.90	$.80

Our Queens Produce Colonies that Produce Honey.

Baker & Running Apiaries

C. W. Baker, Manager

Sumter County

SUMTERVILLE, ALABAMA

ITALIAN QUEENS

1-99	$1.25 each
100-up	1.10 "

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● H. J. Heinz Company—makers of the famous 57 Varieties—is in the honey business, to market millions of pounds annually—now and after the war.

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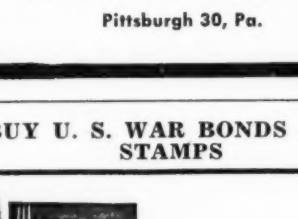

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5,000 three pound package bees with queens available in May.

Packages in Proportion

May we serve you
3 lb. with qns. $5.00
2 lb. with qns. 4.00
Extra qns. 1.25
By Express

OVERBEY APIARIES, BUNKIE, LA.,

MULTIPLE MATING OF QUEEN BEES PROVED BY PROGENY AND FLIGHT TESTS

(Continued from page 259)

queens made additional flights after mating. The duration of the mating flights averaged 15.8 minutes, and of the nonmating flights 10.4 minutes. Duration of the mating flights decreased from 19.3 minutes in April to 11.9 minutes in June, probably because drone populations became larger as the season advanced.

In 1942, 35 yellow queens were allowed free flight at mating stations provided with yellow drones. Eight of these queens mated only with yellow drones, 1 mated only with black drones, while 26 mated with both the yellow drones and with stray black drones. Comparison of the worker progeny of these naturally mated queens with those of sister queens artificially inseminated, using drones taken from the drone colonies at the mating station, verified these conclusions.

The relative distribution and amount of black and yellow coloration on the abdominal tergites of worker bees were used as criteria to set up a system of color classes.

Yellow queens artificially inseminated with sperm from yellow drones produced only yellow workers. Yellow queens crossed with black drones produced only worker progeny of the intermediate class. Sister yellow queens inseminated with sperm from both black and yellow drones produced workers in both the yellow and intermediate groups.

These results indicate that multiple matings occur more frequently under natural conditions than was observed during the flight-control observation. Therefore multiple matings by queens appear to occur more frequently than single matings.

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SPINSTER JANE SAYS

(Continued from page 279)

I've just been reading up the Statutes, to learn what I can about the laws pertaining to bees. And the reason? Boy has intended shifting a few hives from the home yard to a property he bought, intending, when the war is ended, to build a repair shop and garage there. An officious trustee of the school, near which this property is located, says, "If my little girl should be stung!!" So I began to read. And I find, bees may be kept within 30 feet of a highway, or cultivated field or pasture or dwelling. If protected by a fence at least seven feet high, or by a high hedge, so great a distance isn't necessary. Now, knowing the facts of the case, we can go ahead without fear. But how great big human creatures do fear the sting of a tiny bee, and a few of those tiny hypos may make them immune to rheumatism!

ITALIAN QUEENS

KELLEY—"The Bee Man"

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1 to 24, - - - - -	$ .90 ea.
25 to 99, - - - - - -	.85 ea.
100 and over, - - - -	.80 ea.

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Prompt Shipment from Paducah

MAIL YOUR ORDER NOW

THE WALTER T. KELLEY CO.

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BOOKED UP TO MAY 20th

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Lots of:	Queens	with queen 2 Lb. Pkg.	with queen 3 Lb. Pkg.	with queen 4 Lb. Pkg.	with queen 5 Lb. Pkg.
1 to 24	$ .90	$3.30	$4.30	$5.30	$6.30
25 to 99	.85	3.15	4.15	5.15	6.15
100 or more	.80	3.00	4.00	5.00	6.00

Queenless Package - Deduct Price of Queen

The Stover Apiaries

Maybew, Miss.

Queens—Progeny-Test 3-Banded Italians.
Queens—Daughters of Stock Bred for Resistance.
QUALITY AND SERVICE

	2-Lbs. with Qn.	3-Lbs. with Queen	Queens
1-24	$3.20	$4.20	$ .90
25-50	3.15	4.15	.85
51-99	3.10	4.10	.80
100 & over	3.05	4.05	.75

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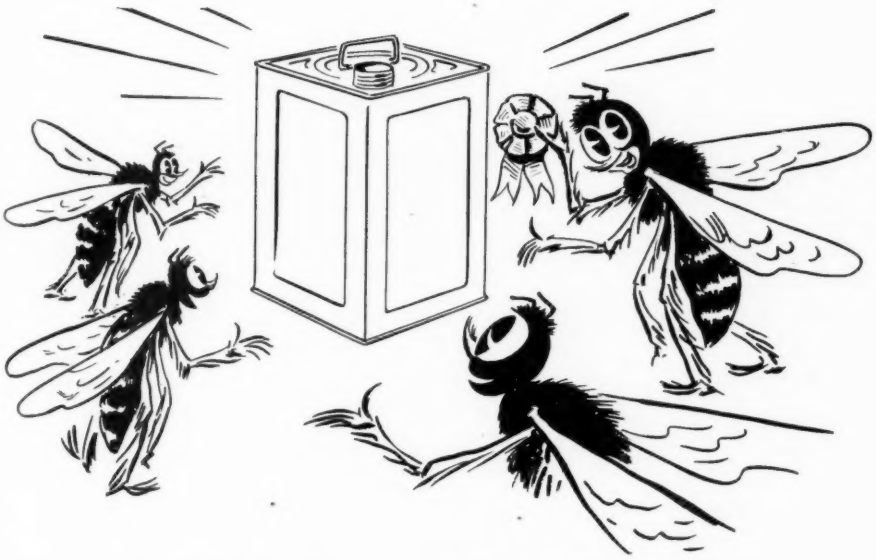

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Yes, Hen's Teeth, We Have Them

They give your DOLLARS more cents

4-fr. Extractors 9⅝" baskets	each	$14.75
10-fr. Wood Bound, Wire Queen Excluders, 5 or more	each	.80
10-fr. Telescope Cover Hives (Composition covering) with inner covers, frames, etc. Lots of 5		14.75
10-fr. Hive Bodies and Frames, lots of 5		6.65
Hoffman Brood Frames, per 100		5.05
25 lb. Hercules Wired Brood 8x16¾ or 8½x16¾		18.50
25-lb. Hercules Plain Brood 8x16¾ or 8½x16¾		17.50
25-lb. Thin Surplus Foundation 3⅞x16		19.75
Bee Escapes	each	.12
2" Hive Staples, per lb.		.30

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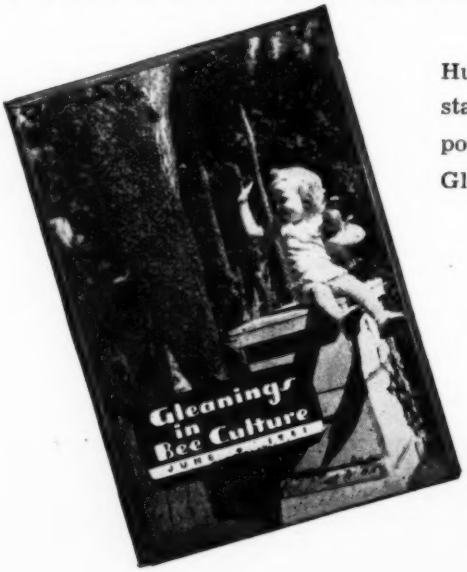

Hundreds of new beekeepers have started this year. Their success is important. **"Talks to Beekeepers"** in Gleanings in Bee Culture will help them.

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GLEANINGS IN BEE CULTURE
Medina, Ohio

AN URGENT CALL TO QUICK ACTION

. . . Sell Your Present Honey Crop to a Reputable Honey Packer and Help Protect Your Own Future

IN many sections this month across the land the busy bees are making honey and Beekeepers are faced with an especially important decision.

Now that the new honey crop is at hand, where, to the Beekeeper's best advantage, shall he sell that honey?

For every Beekeeper who expects to be in business next year and in the years to come, the answer should be easy.

As a matter of future self-protection, the far-sighted Beekeeper will sell as much of his current crop as he can to some reputable, long-established Honey Packer.

Here is one big reason why the Beekeeper should take such action . . . and take it now.

Famous Brand Names Build Quality Sales

Every reputable Honey Packer markets honey under some famous brand name . . . a name that pledges unvarying, high quality to the consumers in the territory each Packer serves.

By jealously guarding this quality over many years, and by expenditures of thousands of dollars in advertising and promotion, such Packers have built strong, permanent and growing markets for good honey . . . markets that assure the Beekeeper profitable outlets for his product long after the present honey boom is past.

Reputable Packers Need Your Honey

This year . . . more than ever before . . . reputable Honey Packers need good honey, and lots of it, to support this permanent market.

Mrs. Consumer must continue to be able to go into a store, select the well-known brand of honey she trusts, and enjoy that good honey in her home, or the whole future of the honey industry . . . the Beekeeper's future as well as the Honey Packer's future . . . will suffer.

Protect Your Future By Supporting These Packers

Printed below you will find a list of a number of America's leading Honey Packers.

Each of these Packers markets honey under a brand name long and favorably known . . . a brand name that to the retail buyer means honey at its flavorful best.

Each is doing his full part, by keeping faith with the consumer to safeguard the future of honey sales and profits for the entire industry . . . the Beekeeper and the Honey Packer alike.

But the Honey Packer cannot carry this entire load alone. This year particularly, Mr. Beekeeper, the Honey Packer needs the Beekeeper's full and generous support.

So, Mr. Beekeeper, won't you sit right down now and write your favorite Packer how much honey he may count upon this season from you?

You will not only get top OPA Ceiling Prices, but you will be doing everything you can to protect your own long-range best interests.

The Following Established Packers Invite Your Valued Cooperation:

THE JOHN G. PATON COMPANY, INC.
New York City

THE SIOUX HONEY ASSOCIATION
Sioux City, Iowa

SUPERIOR HONEY COMPANY
Los Angeles, Calif.

C. W. AEPPLER COMPANY
Oconomowoc, Wis.

T. W. BURLESON & SON
Waxahachie, Texas

B-Z-B HONEY COMPANY
Alhambra, Calif.

H. J. HEINZ COMPANY
Pittsburgh, Pa.

The Monthly Honey Market

Information From Producing Areas
(Prices generally refer to sales at wholesale by beekeepers f. o. b. shipping points except as otherwise noted. Dates shown for each section indicate approximate period covered.)

EAST CENTRAL AND NORTH CENTRAL STATES: (Period April 26-May 11)

Michigan. On the upper peninsula most bees were taken out of the cellars during the last few days of April. Wintering was good with light losses, but heavy feeding has been necessary and there has been nothing available for bees to work on. On the lower peninsula this period was cold and wet, greatly improving moisture and plant conditions, but being unfavorable for bee and bee yard activity. Clover appears to be coming along well, with plentiful supplies of white Dutch clover. Fruit bloom and dandelions are running around two weeks late. Heavy feeding has been necessary in all parts of the southern peninsula. Many colonies have built up very slowly, while others which had plentiful stores have built up well. As a whole winter losses were relatively light and bees are in much better condition than a year ago. Very little honey is available in this section. Sales f. o. b. shipping point, per lb. - Clover, in small pails 19-19½c.

Wisconsin. From present indications bees have wintered very well with abnormally light losses. Some colonies are building up well while others have developed very slowly. Heavy feeding has been necessary in all yards. Cold, wet weather during the past period kept bees confined much of the time, although they did obtain some pollen from maple and box elder. The season is about too late. Dandelions are just beginning to bloom in southern Wisconsin and fruit should begin to bloom around May 20. Clover plants look unusually good, with very little winter killing. Little honey is available and no sales were reported.

Minnesota. The spring has been very late, wet and cold. Many bees were removed from the cellar or unpacked until the last few days of April. Losses were heavier than previously anticipated, but are not nearly as heavy on an average as last season. Consumption of stores has been heavy and brood rearing has been rather active. Large quantities of package bees are being received and indications are that there may be a little expansion in this area.

Ohio. Over the State as a whole bees are in very good condition, and have built up well on early bloom. In southern and Central Ohio dandelion and fruit bloom was about over around May 10, while in northern Ohio this bloom was just beginning. Winter losses in most yards have been very light, running on an average less than five percent. While some beekeepers found a little feeding necessary, large scale feeding has in most cases been avoided this year. Moisture conditions are unusually good and clover, especially white clover, is in excellent condition. Sales f.o.b. shipping point per lb., white clover, in small pails 19c. Beeswax, 41½c per lb. f.o.b. to beekeepers.

Indiana and Illinois. The season through this area averages about two weeks late, with considerable cool, rainy weather during the early part of this period which prevented bees from working. The latter part of the period was quite favorable. In the southern part of these States dandelion and fruit bloom is largely over; and yields have been variable. In some sections colonies built up well, while in others unfavorable weather prevented them from taking full advantage of these early flows. In the northern portion dandelion and fruit were in bloom around May 10 and most colonies were building up rapidly. Clover plants are in unusually good condition. Sweetclover seems to be rather scarce, but white clover is more abundant than in any year since 1940. Very little honey remains in the hands of beekeepers, but many wholesalers and retailers still have sufficient stocks on hand to carry them for some time. Sales f. o. b. shipping point, per lb. white clover, in case to ton lots 12c; clover-heartsease in single 60s and bulk to consumers 15c.

Kentucky. Cool, rainy weather prevailed into early May, preventing bees from obtaining much from the dandelion, red bud, and other early flows. Locust and blackberry are beginning to bloom and show promise of a good yield weather permitting. Clovers of all kind are plentiful and showing luxuriant growth. Brood rearing has progressed slowly and considerable feeding has been necessary in most areas. No honey sales were reported. Beeswax continued to move at the ceiling of 41½c cash and 43½c in trade, f. o. b. to beekeepers.

NORTHEASTERN SECTION: (Period April 27-May 13)

New York. Much of this period was cool and rainy, although there were a number of days when bees could fly and most beekeepers have been able to complete their unpacking and spring feeding operations. Dandelion and fruit are beginning to bloom. In western New York many bees have been placed in the orchards for pollination. Winter losses were generally light and most colonies were building up fairly well.

SUMMARY, May 15, 1944

The spring has been rather backward in all sections of the country excepting the Northeast from Ohio eastward and the Atlantic Seaboard States. Through the Intermountain area, Southwest, Plains States, and the North Central States west of Ohio, the season is at least two to three weeks late and cool, rainy weather has prevented bees from working normally on such flows as were available. On the other hand, moisture conditions are good and plant prospects are generally favorable. In the clover area there seems to be an overall decrease in the acreage and quantities of sweetclover available, but white clover is more plentiful and in most areas making a luxuriant growth. For the country as a whole winter losses have been considerably lighter than last year, but through the Intermountain and Plains Area spring dwindling has been quite serious and heavy feeding has been necessary. In the Southeast, gallberry furnished the principal flow during this period, while in Arizona and California the citrus flow was the important one. In the northern groups of States dandelions were blooming and much of the deciduous fruit bloomed during this period

except in the extreme north where this bloom will come during the latter half of May. In California prospects are not too favorable for the sage and buckwheat flows.

Shipment of package bees and queens continues active especially in the Southeast, but in many of the northern States weather has been very unfavorable for the introduction of packages. Some southern beekeepers have had difficulty in producing sufficient queens with the result that shipment of packages has been somewhat retarded. Labor shortages are still a problem with package and queen shippers and also with large commercial apiarists. The changed Selective Service regulations wherein men in essential occupations who are beyond the twenty-nine year age group will be given greater consideration for deferment, may help this situation somewhat.

Old crop honey seems to be quite closely cleaned up among beekeepers. On the other hand, some packers and many wholesalers and retailers apparently have sufficient stocks on hand to carry them until the new crop comes on. In the Southeast some citrus, gallberry, and ti-ti honey has been extracted and in California some early deciduous and a very little orange honey has been extracted. In general, ceiling prices of 12c per lb. in case lots to ton lots or 15c per lb. in single 60s directly to consumers prevailed. However, some bulk amber honey in the Southeast sold at around 11½c per lb. Offerings of beeswax was somewhat lighter with prices holding at the ceiling of 41½c cash and 43 1/2c in trade, f. o. b. to beekeepers.

Monthly Report of Honey Producers

Early in May we sent the following questions to honey producers: 1. What is your estimate revised to date, of the amount of last year's honey crop not yet sold in your locality? Give answer in per cent. 2. At what price has honey been sold or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted honey, per pound? (b) Comb honey, Fancy and No. 1, per case? 3. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, Fancy and No. 1, per case. 4. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) Comb honey, Fancy and No. 1 per section? 5. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair, or rapid. 6. What is the condition of the honey plants at this time in your locality, as compared with the average? Give answer in per cent. 7. What is the present condition of the colonies, as compared with normal, considering the number and age of the bees and the supply of stores? Give answer in per cent. 8. What is the per cent of winter and spring loss to date (if any) in your locality? The answers received are tabulated as follows:

Date Rec. May	State	Name	1 1943 Hold over	2 To Grocers Ex.	2 To Grocers Comb	3 To Consumers Ex.	3 To Consumers Comb	4 movement	5 Cond. honey plants	6 Cond. colonies	7 Percent loss
8	S-Ala.	(J. C. Dickman)	0					Fair	80	60	
13		B. C. (A. W. Finlay)	0						100	100	15
10	S-Calif.	(L. L. Andrews)	0				.35	Fair	50	80	12
15	S-Calif.	(Geo. Larinan)	0					Rapid	25	80	
11	SE-Colo.	(Otis E. Adcock)	5					Fair	100	80	5
8	E-Conn.	(Allen Latham)	2					Slow	100	100	5
9	S-Fla.	(C. C. Cook)	0					Fair	110	125	10
9	C-Fla.	(Harry Hewitt)	0					Fair	100	100	0
8	SE-Ga.	(J. J. Wilder)	0					None	100	100	10
10	NC-Ills.	(A. L. Kildow)	0					None	100	100	2
5	S-Ills.	(Carl E. Killion)	0					Rapid	75	85	8
8	NC-Ind.	(T. C. Johnson)	0		6.00		.35	None	100	100	5
8	NW-Ind.	(E. S. Miller)	0				.35	Fair	100	100	10
10	W-Iowa	(E. G. Brown)	0					Fair	50	100	15
9	N-Mich.	(Ira D. Bartlett)	0					Slow	100	100	5
9	E-Mich.	(L. S. Griggs)	0				.30	Slow	100	75	20
10	S-Mich.	(Floyd Markham)						Fair	85	80	5
10	C-Mich.	(E. D. Townsend)	0						100	80	
11	SW-Minn.	(L. A. Syverud)						Slow	90	80	20
10	W-Minn.	(B. L. Morehouse)	0					Fair	90	95	7
6	S-Minn.	(J. F. Garner)	0					Fair	100	90	10
15	C-Nebr.	(J. H. Wagner)	0				.28	Slow	90	80	6
10	W-Nev.	(Geo. G. Schweis)						Slow	50	75	
9	W-N. M.	(C. A. Baltzley)	0					Fair	100	90	5
11	W-N. Y.	(Adams & Myers)	0				.40	Slow	100	100	15
9	NW-N. Y.	(Geo. B. Howe)						Slow	80	95	
6	C-N. Y.	(F. W. Lesser)	0						90	100	5
15	C-Ohio	(R. D. Hiatt)	0					Fair	100	75	20
13	NC-Okla.	(C. F. Stiles)	0					Fair	85	80	15
9	C-Penn.	(Harry Beaver)	0					Slow	90	90	5
8	SE-Penn.	(D. C. Gilham)	2		6.00		.35	Fair	90	90	20
8	C-Tenn.	(J. M. Buchanan)	0					Fair	90	90	
8	E-Tenn.	(W. L. Walling)	0					Fair	90	95	0
9	C-Texas	(T. A. Bowden)	0					Rapid	100	100	
8	S-Texas	(C. G. Mayes)	10					Rapid	10	10	15
9	S-Texas	(H. B. Parks)	0					Fair	60	50	5
15	W-Utah	(Wm. Moran)	4					Fair	90	75	20
8	S-Va.	(T. C. Asher)	0		5.00		.35	Fair	95	95	10
10	N-W. Va.	(W. C. Griffith)	0					None	100	100	1
8	W-Wisc.	(E. H. Hanselman)	0						90	85	10
13	N-Wyo.	(Earl C. Reed)	0					Fair	75	75	20

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Paducah, Kentucky

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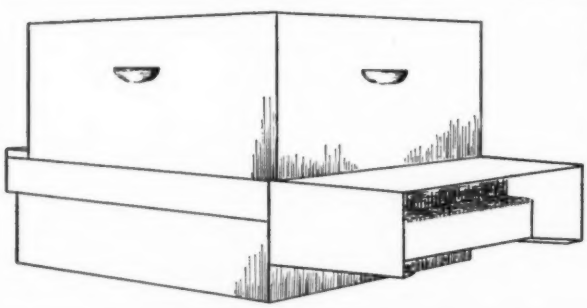

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(plus postage)

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